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ABSTRACT

Sample components of the Comprehensive Teacher Training Programme (CTTP), a distance education program offering four academic upgrading courses to Caribbean women who are untrained elementary school teachers are presented. Though the bulk of the publication is made up of materials from these distance education courses, the opening section contains descriptions of the program's general goals, its design for easy access, its flexibility, its relevance and functionality, its teaching and learning processes, its accessibility and gender inclusiveness and simplicity, and its delivery and support system. These points suggest that the program is well designed to serve nontraditional women students. The sample materials appended include: (1) the program brochure; (2) tables of contents for mathematics modules and for the integrated science school-based assessment assignments showing program accessibility; (3) information on designing materials for and supporting busy learners to show course management flexibility; (4) graphics, reading exercises, and home science experiments showing relevance and functionality; (5) an integrated science module table of contents, introduction, summary and glossary, a module test marking sheet, and a science module; (6) data on program employee gender, sample edits of program materials highlighting sexist material, and material on identifying and correcting sexist language to demonstrate the program's accessibility, inclusiveness, and simplicity; and (7) a sample radio announcement to show the program's delivery and support system. (JB)

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ORGANIZATION FOR CO-OPERATION IN OVERSEAS DEVELOPMENT
REGIONAL OFFICE
CASTRIES, ST. LUCIA , WEST INDIES

COMPREHENSIVE TEACHER TRAINING PROGRAMME

ED 392 771

A REPORT PREPARED FOR: THE COMMONWEALTH OF LEARNING FOR CONSIDERATION IN A HANDBOOK FOR DEVELOPING GENDER SENSITIVE EDUCATIONAL MATERIALS

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3. Comprehensive Teacher Training Project: Plan of Operation for the Project - Phase 1, by Salasan Assocaites, Inc.
4. The Comprehensive Teacher Training Program (brochure)
5. OCOD Semi-Annual Report to CIDA : Canadian International Development Agency Re: Project # 0100920 - S 22568 15 April 1990
6. OCOD Semi - Annual Report to CIDA: Canadian International Development Agency RE: Project # 010920 - S 22568 15 November 1990
7. OCOD-CTTP Test Evaluation Report, by Dr. Leonard Shorey, 1991
8. OCOD - CTTP Learner Supports Package: Learner Workshops 1991
9. OCOD-CTTP INTEGRATED SCIENCE - SCHOOL BASED ASSESSMENT MARKER / TUTOR HANDBOOK
10. OCOD-CTTP OFFICE MANUAL, by Gene Walters 1992
11. OCOD. Report on the Comprehensive Teacher Training Project (CTTP) to OCOD Board of Directors, Winnipeg, Manitoba, Canada , by Helen Buckley, 22 February 1992
12. OCOD Semi - Annual Report to CIDA: Canadian International Development Agency, re: Project # 010920 - S 37082 by Dr., heather Sharman, 15 April 1992
13. OCOD - CTTP Progress report to OCOD - CTTP Country Co-ordinators and Their National Advisory Committees, by Helen Buckley, October 1992
14. OCOD - CTTP An Innovative and Successful Caribbean Project Using Distance Learning, by Helen Buckley November 1992
15. OCOD - CTTP Revisions Workshop Report 15 - 18 December 1992
16. OCOD - CTTP Update Report for OECS Education Desk April 1993
17. OCOD - CTTP Phase I Wind Down Plan and information for Implementation Phase, 30 April 1993
18. OCOD -CTTP Course Completion Survey on the Delivery Process and the Course Content of the OCOD - CTTP Distance Education Project: Learner Survey 1993
19. OCOD - CTTP: An Introductory Study Booklet for OCOD -CTTP Learners

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Example #1 - Getting Your Programme Known

In the Eastern Caribbean the Ministries of Education will be responsible for delivery of the four (4) academic upgrading CXC (GCE) 'O' level courses. The primary target group is untrained elementary school teachers, most of whom are women. A "Studying at a Distance Orientation Programme for New Learners" has been recommended. Many successful female former learners are interested in assisting with the initial training of newly recommended students.

Regular advertising channels will be used according to decisions and budgets of host country governments. Combining this approach, with the more informal peer-coaching orientation strategy of using successful role models as trainers should increase better access to and an understanding of the CIDA OCOD-CTTP courses in Mathematics, English, Integrated Science and Social Studies. The learner orientation will focus on both course content and course process. It will also highlight essential, successfully field-tested student support services. (See Appendix 1: Sample 01 - the OCOD-CTTP Brochure).

Example #2 - Access Courses

Increasing access for women to distance education courses is as important in the Eastern Caribbean as elsewhere in the world, especially in the science, technology and vocational arenas. For example, the OCOD-CTTP Maths course reognises academic skill deficiencies upon entry. The thirty modules, which constitute the course, are designed to be studied sequentially. The first three modules, however attempt to bridge prior CXC work to that of face-to-face students in Form IV. Pre-tests, used as diagnostic tools, also assist the learners in identifying skill areas which need to be strengthened before more difficult concepts are tackled.

As many practitioners in distance education realise, the success of the learner in the first few mediated assignments is directly related to student persistence and eventual course completion. Going from the simple to the complex and feeling initial success was the design maxim for all the courses. (See Appendix 2: Sample 02-01 - Table of Contents for Maths 1-4 and Sample 02-02 - Table of Contents for Integrated Science School Based Assessment Lab and Home Assignments).

Example #3 - **Flexibility in Distance Education Course Management**

Being a self-directed learner is not an easy task. Institutional and personal assistance regarding the learning process is therefore paramount. Some of the examples regarding institutional and personal flexibility towards the OCOD-CTTP field testing learners (1989-92) were as follows:

- **Flexible Timing**

  When studying forms IV and V, face-to-face students cover the material in six school terms. This time frame allows the average student to complete 4-6 courses in the six terms over a two-year period. Regional examinations expected to be taken in June, must be registered and paid for by the end of the previous November. Another examining period takes place in January but registration for these make-up examinations are not sought until the previous October.

  Because the field testing learners in the pilot project were funded by the organisation which co-ordinated the writing of the material, the cost of materials, tutorials and examinations was covered by the organization. Flexibility in enrollments and payments was not as easy as expected because the process initially was a field-test with a specific group of learners. Nonetheless this important issue must be planned for as learners need to be aware of budgeting their money as well as their time upon enrollment in the courses. A schedule of events and payment date deadlines should be included in initial information packages.

- **Exam Flexibility**

  While outside deadlines regarding examination registrations were rigid, deadlines, within the project and amongst cooperating organizations were more flexible. For example, the CTTP paid for learners only once to write the exams. But if the learners could write the exam before they were finished the courses, they were allowed to go through the exercise as a learning experience at their own expense. This flexibility in timing proved useful as a strategy for overcoming examination fear with some learners.

- **Tutorial Flexibility**

Another flexible strategy of project management involved face-to-face tutorials which were part of the student supports structure. When doing the school-based assessment in Integrated Science, students had to attend compulsory laboratory sessions. Young people attending a secondary school would do this automatically as part of their weekly timetable. It was not so easy for the distance learners, coming from remote areas of the country to one well equipped secondary school science laboratory.

In exchange for using the school on Saturdays, the organization agreed to assist with stocking the laboratory. The regional examining body agreed to receive the lab results from distance learners in blocks rather than terms. Distance learners therefore attended their science labs on some Saturdays and throughout a week during various vacation periods. A win-win approach to problem solving was achieved through flexibility.

- **Materials Flexibility**

When preparing to write the materials, the trainers realized how important a flexible learner-focus would be. Discussions among the writers created an average learner from amongst the target group. The average learner was given a name, a family, a particular job, a remote location, some personal problems and some barriers to learning both 'self' and 'other' imposed. Because of discussions conducted before the writing process, the writers were actually able to pitch their lessons at this fictitious learner.

For example, many of the field testing learners were single parent mothers teaching all day, preparing their classes and doing their studies either in the evenings after their children had gone to bed or in the early morning hours before they woke up - a quiet time. Lighting in many of the homes was not very bright and many women felt that they must cook fresh food every day as the electricity and water supply in these tropical climates was not always stable. Lessons therefore were designed to be completed by the learner in "one sitting" and usually took between 1-2 hours. (See Appendix 3: Sample 01 - Materials Flexibility: Designing Materials for Busy Learners).

- **Flexible Methods/Decentralization**

Appropriate and timely feedback is a crucial aspect of distance education courses. A system using the mail service was initially designed in the project. In many cases it worked but the flexibility of project management allowed for more effective and perhaps less orthodox ways to develop regarding the initial dissemination and return of work. Figure 01 illustrates the communications flow of the courses:

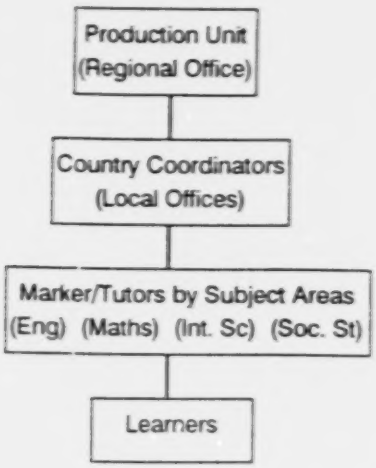

Fig: 01: Intended Communications Flow of Materials

a) Working in a small island state necessitates frequent air travel. Many business and government officers assisted with transporting the needed materials from island to island as they knew they were supporting a worthwhile educational project and had some extra baggage allowance. One airline even agreed to send a few extra boxes *gratis* as space permitted.

b) Getting materials to and from the local office was often done by the country coordinator and marker/tutors as they were in town on other business. The camaraderie which resulted from these informal arrangements gave a greater sense of ownership for the stake holders and increased awareness of the process, its problems and some problem-solving strategies.

c) For example, in one country the only vehicle that went consistently to the school was the electricity truck which also carried ice, soft drinks and other items which people requested. Because the driver of the truck was related to one of the teachers who was also a distance learner, the turn around time recorded for her work and those of her neighbours was amongst the lowest in the country.

- **Counselling**

  During the field test it was envisaged that the majority of counselling would be either academic/content related or explanations of various procedures and processes. While this kind of counselling was in fact done by telephone, letter, or at face-to-face tutorials, many of the marker/tutors and country coordinators requested more workshops in career, family and even crisis counselling.

  Marker/Tutors had little idea of the important role that counselling plays in adult education. Getting to know the learners and their families make problem solving that much easier and the learner that much more confident in reaching his/her educational goals. Experiences gleaned during the two-year field testing process will form the basis for future training as the project expands. (See Appendix 3: Sample 03.02 - Table of Contents for CTTP Learner Orientation Handbook; Sample 03.03 - CTTP Planning Helps Pacing: Learner Newsletter; and Sample 03.04 - CTTP Journals: Learner Newsletter).

Example #4 - Relevance and Functionality

- **Learning Materials: Culturally Appropriate Content and Visuals**

  The design of the curriculum, as well as the materials of the courses, sought to take into account the cultural experience of the learners as well as their current skill levels.

  The writers in the project were all experienced West Indian teachers most of whom had experience working with the Caribbean Examinations Council as well as form V students. After initial training

in module writing, they realized the importance of "graphics" and "white space" as motivators in distance education course materials. This important realization was also held by the regional office staff working on the desk top publishing part of the project. These employees also received some initial training in desk-top publishing techniques and the importance of appropriate layout for print based material.

Charts, tables, diagrams drawings, cartoons and, to a lesser extent, pictures all formed a valuable part of most lessons. (See Appendix 4: Sample 4.01 - Various types of Graphics Illustrating a West Indian Flavour, including Gender Issues).

- **Readability**

  All the lessons in all the courses were checked for their readability level using the software programme entitled the "Right Writer". Any piece of writing below a grade 6 level or above a grade 10 level was either rewritten or edited accordingly. This time-consuming process contributed to the learner focus of the project and assisted the learners when studying the modules. (See Appendix 4: Sample 4.02 - Readability Levels of CTTP Courses).

- **Relevance and Functionality in Science**

  While face-to-face lab sessions were a compulsory part of the science course, the writers also designed experiments which could be conducted at home by the learners using materials found locally. Six such samples are included here. (See Appendix 4: Sample 4.03 - Integrated Science Home Experiments).

Example #5 - Teaching and Learning Processes

Because the major goal of the OCOD/CTTP courses sought to be learner focussed, all the material was presented to the field test learner in manageable chunks as well as a learner friendly style. Each course was broken down into modules. Each module was broken down into lessons.

Each lesson had a consistent format which included the following segments:

1. behavioural objectives,
2. a list of materials required,
3. the appropriate time needed to complete the work,
4. an introduction,
5. the major content concepts to be discussed,
6. practical examples, assignments, exercises to be completed,
7. a conclusion,
8. a self-check exercise with sample model answers or comments.

Each module had an introduction, table of contents, glossary and end of module test and mark breakdown sheet to be completed by the learner under examination conditions and sent to the marker/tutor for marking, recording and comments. (See Appendix 5: Sample 5.01 - Module Table of Contents, Introduction, Summary and Glossary for Integrated Science Module 22; and Sample 5.02 - End of Module Test Marking Sheet for Integrated Science Module 22. See also Sample 5.03 - Lesson 3 - The Endocrine System for Integrated Science Module 22).

Example #6 - <u>The Appeal of Accessibility, Inclusivity, Simplicity</u>

Because the OCOD/CTTP distance education project was funded by the Canadian International Development Agency (CIDA) who supports the UN guidelines on Women in Development, all interim reports included a section on gender.

The majority of people involved in this specific project were women. Perhaps one of the reasons is the nature of education in the region, where most of the teaching population, especially at the elementary school are women. The learners, the writers, most of the content editors, the marker tutors, the country coordinators, the training consultants and the regional office staff all reflected this fact although it was certainly the intention of the administrators to select the best candidates for the various positions. All discussed the issue of gender in their training sessions. (See Appendix 6: Sample 6.01 - OCOD-CTTP Employees by Gender).

The English and Social Studies courses were specifically read by a consultant to the project looking for racist, classist or sexist remarks or illustrations. Any material found offensive was drawn to the attention of the subject area content editors who considered the recommended changes. Needless to say some interesting discussions ensued. (See Appendix 6: Sample 6.02 - Editing the OCOD-CTTP Modules for Sexism - four examples and Appendix 4: Sample 4.01 - Various types of Graphics).

A book entitled *The Nonsexist Communicator - Solving the Problems of Gender and Awkwardness in Modern English* by Bobbye D. Sorrels (Englewood Cliffs: Prentice Hall Inc. 1983), was used as a guideline by the regional office in-house editor when reading all the course materials. The book raised awareness concerning the issue of gender free writing and the two appendices proved particularly useful. (See Appendix 6: Sample 6.03 - Appendix B a Sample Excerpt).

The most useful suggestion utilised was to put sentences in their plural form to avoid the he/she, him/her awkwardness of construction. Nonetheless the best way of confronting people who could not see what all the big fuss was about, was to point out to them that "he who pays the piper, calls the tune". Sure enough, when the project finally went through the external evaluation process, one of the variables measured was the use of gender free writing.

Example #7 - <u>Delivery and Support System</u>

The best support network during the project took place because the major stakeholder in the project took ownership of the problem which needed to be addressed. They therefore developed all kinds of informal and relatively inexpensive supports of both the dissemination of the materials and support of the learners.

The country coordinators developed their own effective systems of communication with the learners through networking with their employers (the principals of the schools in which they taught), using the local government information services or providing announcements on free spots in the local media (Shoppers Guide, etc.). Enclosed as Appendix 07 is a sample of an announcement to learners written by one of the country coordinators and aired on the local government controlled radio station.

Appendix #1 **Getting Your Programme Known**

Sample 01 - The Organization for Co-Operation in Overseas Development (OCOD) - the Comprehensive Teacher Training Programme (CTTP) Information Brochure

Learner Supports

- Self check exercises
- Textbooks, interim tests, revisions exercises, mock CXC exams
- Written feedback on each graded End of Module Test
- Monthly Face-to-Face Sessions from marker/tutors specialized in each subject area
- Learner orientation workshops with sessions on study skills, time and stress management etc.
- Telephone tutoring, personal and academic counselling
- Payment of CXC exam fees, transportation and lunch allowance.

ENDORSEMENTS & ASSISTANCE

The CTTP is endorsed by Governments, CXC, Teachers' Unions, Teachers' Colleges, OECS, UWI and CARNEID. Generous assistance is also being provided by many Canadian, USA and UK Universities and other distance education associations and institutions like the Commonwealth of Learning (COL) and the International Council for Distance Education (ICDE).

STAFFING THE CTTP

While there are 13 full time staff at the Regional Office in St. Lucia, hundreds other people in the region have assisted with various tasks in the course production and delivery of the program. Many of them are volunteers, part time workers and various Canadian and Caribbean consultants. Their commitment, time and expertise is gratefully appreciated.

THE FUTURE

Charting the initial learner progress regarding HOW they learned as well as WHAT they learned will provide valuable assistance in the future as local governments (specifically in the Windward Islands) seek to provide a guided academic educational opportunity for home study of all their untrained teachers.

No doubt other educational institutions in OECS and CARICOM countries will also design creative uses for the OCOD-CTTP material.

OCOD

The Comprehensive Teacher Training Program

CTTP

OCOD Regional Office
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Castries, St. Lucia

Phone 809-452-7955
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COOPERATION IN OVERSEAS DEVELOPMENT

OCOD is a voluntary, non profit organization based in Winnipeg, Manitoba. Funded by the Canadian International Development Agency (CIDA), the organization seeks to assist the Caribbean countries it serves to achieve self-sufficiency in the teaching profession through the Caribbean Summer Workshops, various specialized courses and the Comprehensive Teacher Training Program (CTTP).

OBJECTIVES FOR THE CTTP

1. Consistently maintain a 'learner' focus by assisting untrained teachers to qualify academically for entry to their training colleges.
2. Design, write, field-test, evaluate and revise four CXC O'level general courses in English Language, Mathematics, Social Studies and Integrated Science.
3. Design and develop a distribution and delivery system incorporating adult education and distance education support strategies specific to the needs of the learners in Dominica, St Lucia and St. Vincent and the Grenadines in the first instance.
4. Promote the development of Distance Education in the region and abroad.

THE MATERIAL

The material in all four courses, designed for the busy teacher, is print-based with audio and face to face supports. Courses are divided into self study learning packages called modules. Each module contains lessons which can be completed at one sitting. All follow the CXC general level syllabus.

1. English Language (EN)

The sequential English Language course consists of 22 modules or 107 lessons, a revisions guide and two textbooks. Various levels of grammar, comprehension and the writing of continous prose are included.

2. Mathematics (MA)

Entitled **Mathematics for Success**, this course includes 30 modules or 156 lessons, two textbooks and various interim tests. The level of difficulty progresses from a review of computation, problem solving and number theory to consumer math, algebra, measurement and geometry. The later modules also cover topics on relations, functions and graphs, vectors and matrices, trigonometry and statistics.

3. Social Studies (SS)

Focussing on the Caribbean, this topical course consists of 33 modules or 132 lessons and 2 textbooks.

Core topics covered are: the Individual and the Family, the Individual and Society and the Development and Use of Resources. Optional topics include: Tourism, Consumer Affairs and Co-operatives.

Learners are also expected to complete some field work in anticipation of an expected school-based assessment.

4. Integrated Science (IS)

This course combines numerous topics from biology, chemistry, physics and general science. It consists of 37 modules covering 157 lessons. Accompanying the course are three textbooks and 2 school based assessment manuals, one for learners and one for marker/tutors. While many experiments are designed to be done at home, learner attendance at a local lab is compulsory.

Characteristics and Time Frame

- 120 untrained teachers in Dominica, St Lucia and St. Vincent.
- Marker/tutor - Learner ratio 1:12.
- All countries testing Mathematics and English.
- St Lucia and Dominica testing Social Studies.
- St. Lucia and St. Vincent testing Integrated Science.
- Dispatch and monitoring of modules and learner progress through local country co-ordinators.
- CXC exams sat primarily in May/June 1992 and January 1993.
- One and a half to two years to complete.
- Learners provide written feedback on personal progress, module content and delivery system.
- Marker/tutors and country co-ordinators assist in development of a country specific, successful delivery system.
- Generous assistance and advice from local National Advisory Committees.

Appendix #2 **Going from the Simple to the Complex: Access Courses**

Sample 02-1 Module Tables of Contents for Mathematics Modules 1-4

Sample 02-2 Table of Contents of Integrated Science School Based Assessment Laboratory and Home Assignments

MATHEMATICS
MODULE 01 - COMPUTATION I
TABLE OF CONTENTS

1. INTRODUCTION
2. MAJOR OBJECTIVES
3. TIME REQUIRED
4. MATERIALS REQUIRED
5. LESSON 01: Concept of Place Value
6. LESSON 02: Review of Operations
7. LESSON 03: Decimals
8. LESSON 04: Operations on Decimals
9. LESSON 05: Equivalent Fractions
10. LESSON 06: Fractions: Multiples and Comparisons
11. LESSON 07: Multiplication and Division of Fractions
12. LESSON 08: Addition and Subtraction of Fractions
13. SUMMARY
14. GLOSSARY
15. END OF MODULE TEST

MATHEMATICS
MODULE 02 - COMPUTATION II
TABLE OF CONTENTS

1. INTRODUCTION
2. MAJOR OBJECTIVES
3. TIME REQUIRED
4. MATERIALS REQUIRED
5. LESSON 01: Converting Fractions to Decimals
6. LESSON 02: Percentages
7. LESSON 03: Concept of Ratio
8. LESSON 04: Sharing According to a Given Ratio
9. LESSON 05: Estimation, Significant Figures, Rounding Off Decimals
10. SUMMARY
11. GLOSSARY
12. END OF MODULE TEST

MATHEMATICS

MODULE 03 - PROBLEM SOLVING

TABLE OF CONTENTS

1. INTRODUCTION
2. MAJOR OBJECTIVES
3. TIME REQUIRED
4. MATERIALS REQUIRED
5. LESSON 01: Introduction to Problem Solving
6. LESSON 02: Developing Problem-Solving Skills
7. LESSON 03: Problem-Solving Strategies I
8. LESSON 04: Problem-Solving Strategies II
9. LESSON 05: Problem-Solving Strategies III
10. SUMMARY
11. GLOSSARY
12. END OF MODULE TEST

MATHEMATICS

MODULE 04 - NUMBER THEORY

TABLE OF CONTENTS

1. INTRODUCTION
2. LESSON 01: Sets of Numbers I: N, W, Z, Q, R
3. LESSON 02: Sets of Numbers II: Prime, Composite, Square, Even, Odd
4. LESSON 03: Factors, Multiples and H.C.F.
5. LESSON 04: Factors, Multiples and L.C.M.
6. LESSON 05: Place Value in Any Base
7. LESSON 06: Number Properties and Concepts
8. SUMMARY
9. GLOSSARY
10. END OF MODULE TEST

CTTP INTEGRATED SCIENCE LAB-SESSIONS/SBA ASSESSMENTS FOR FIRST 10 I.S MODULES

First set sent out	March 1991	*SBA ASSESSMENT
1. Module 35	Safety	- none
2. Module 2	Making Water Safe Drink	- none, but check with Debbie and Raymonde
3. Module 3	Safety and Water * To find the upthrust using different fluids	- one
4. Module 4	Aquatic Resources	- none
5. Module 1	Water in Living Things ▪ To compare the effect of heat on the temperature of water and oil * Osmosis	
Second set sent out	**May 1991**	
6. Module 7	Food/Digestion * Testing for the Presence of starch ▪ Enzyme Activity and Denaturation ▪ Demonstrating Digestion and Absorption * To test for Starch in Green Plants Is Carbon-dioxide necessary for Photo-synthesis? * To determine whether chlorophyll is needed for Photosynthesis ▪ To determine whether Sunlight is Necessary for Photosynthesis ▪ Test for Non-Reducing Sugar	

- Energy released from Fat, Protein and Carbohydrate Foods

7. Module 8

Petroleum and Petroleum Products

* Does Petroleum have Stored Energy
- Which Gases Support combustion
- Oxidising and Reducing Flames

8. Module 9

- To illustrate the Ability of Different Types of Surfaces to Absorb Radiation
* Do liquids take in heat when they evaporate?
* Expansion of Solids
- Expansion of Liquids

9. Module 20

Getting over Hurdles in Air and Water

* Investigating the Effects of Angle on Projection on Range

10. Module 10

Electricity

- Construction of a Man-powered generator
* Action of a Fuse
- Measure the Current Flowing through a Lamp.
- Measure the voltage Across a Lamp
- Measure the Resistence of a Lamp
- Determine the Power of a Lamp
- The conductivity Tester
* Drawing Circuits

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Appendix #3 **Flexibility in Distance Education Course Management: Materials and Counselling**

Sample 03-01: Designing Materials for Busy Learners

Sample 03-02: Table of Content for CTTP Learner Orientation Handbook.

Sample 03-03: CTTP Planning Helps Pacing

Sample 03-04: CTTP Journals: Learner Newsletter

Completion Time: 1 1/2 hours

Before you begin you should be able to:

Recall the information on life processes, such as respiration (Module 6); Excretions (Module 23); Nutrition (Module 7).

After this lesson you should be able to:

1. Draw diagrams to show that life processes are interdependent.
2. Define 'co-ordination' and 'regulation'.
3. Explain the significance of co-ordination of life processes.

Materials required are:

Modules 6,7 and 23.

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FACILITATING ADULT LEARNING AT A DISTANCE

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CTTP PLANNING HELPS PACING

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INTRODUCTION

The information in this little planning booklet was discussed orally with all the OCOD/CTTP learners who participated in the August 1991 Learner Workshops. I have written it down as a reminder for those of you who:

(a) were not able to attend the workshops

(b) have not yet completed your own personal pacing schedule

(c) need to revise your study plans for whatever reason

(d) need a little boost right about now as you complete half of your studies and are preparing for your CXC exam.

PLANNING STUDY TIME

All of us have things we want to do in life, or things we want to accomplish in a year. Why is it then that often the time runs out? Perhaps this is because we have trouble breaking down a task into manageable chunks. We should set ourselves daily goals that we can achieve so that when we do, we feel success, good about ourselves and ready to do the same thing tomorrow. This is what successful PLANNING is all about!

At your first learner workshop, most of you met with your student supports consultant and talked about setting learning goals for yourselves. You all want to pass the CXC exam in your subject area with a level 1 or level 2 pass and gain entry to your teacher's college. Some of you want to eventually go on to University.

In order to do this, you need to pace yourself through a two year course which would cover the work that you did in secondary school when you were in form IV and form V. But remember, you now have other roles and responsibilities that you must consider when planning your time as a student - wife/husband, mother/father, teacher, sports coach, prayer-meeting member, choir singer and so on.

Remember that your first task was to find 2 hours per day or 10 hours per week that you could devote to your studies. Did you do this? According to what most of you told me on your first set of questionnaires, you did not.

Why this did not happen is not important now. What is important is that you plan the rest of your study time so that you will be successful in the course. This pacing document is designed to help you. Your marker/tutor and country co-ordinator are also there to assist you plan and re-plan if needed. That is what self-discipline and tenacity are all about!

ASSEMBLING INFORMATION

One of the skills that all form V level students should have is interpreting statistical data or reading a graph. Some of the information you need about pacing your course is outlined below.

	English	Maths	S/Studies	I/Science
Modules	23	30	33	37
Lessons	101	154	150	158
S/Hours	126	186	176	184
R/Hours	63	99	89	92
EMT Hrs	25	32	34	37
T/HOURS	214	317	299	313

Table 01: Estimated Minimum Number Of Hours To Complete OCOD/CTTP Courses.

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The table shows us the minimum number of hours you need to find to complete your course according to what was estimated by the course developers.

Let us look at the table together.

ENGLISH

In English there are basically 23 modules containing 101 lessons. According to the estimates made by the course developers on the objectives pages, these lessons are estimated to take 126 hours to complete.

As we all know, any A or level 1 student usually spends at least half the time revising work they already learnt before writing a test, so for our planning purposes we assumed that you would all do that too. Therefore the number of revision hours for the course would be 63. The actual time needed to take the EMT under timed examination conditions would be 25 hours according to the writers' estimates.

This all means that the total minimum number of hours needed to study this course would be 214 hours. The recommended time of study would be 2 hours per day x 5 days per week or 10 hours per week.

Therefore the minimum number of weeks to complete the course would be 21 weeks plus what we call **turn around time**. That means the time it takes to hand in your work, have the marker/tutor mark it and return it to you.

It does not include the other six time considerations discussed later in this document. Answers to these questions should also be considered when you are planning how to spend your time wisely as a CTTP learner.

MATHS

The Maths course has 30 modules and 154 lessons. The minimum number of hours estimated to actually spend studying the course is 317 hours. This includes : 186 study hours plus 99 revision hours plus 32 hours to take the end of module tests.

If you studied two hours per day, five days per week for a total of ten hours per week, you would need approximately 32 weeks minimum to complete the course. This does not include estimates for turn around time or your personal answers to the six time consideration questions mentioned later in this paper.

Remember too, that one of the keys to studying Mathematics is practice, practice, practice and if you have trouble with a certain concept or idea once it is explained and you think you understand it, you have to practise solving many problems using that idea.

This too takes time which you should consider when pacing your studies. That is also why you should spend time every day working on a subject rather than trying to cram in your ten hours per week in over the weekends!

SOCIAL STUDIES

If you are taking the Social Studies course you will have some research and a lot of writing to do. This course has 33 modules and 150 lessons. By doing all of it you should have a choice of two options by the end of the course - consumerism (which includes co-operatives and credit unions) and tourism.

The course developers estimate that it will take you 176 hours to study the course, 89 hours to revise your work before your end of module tests and 34 hours to actually write your EMT's. Total minimum time therefore needed to complete this course is 299 or approximately 300 hours.

This means that you will need about 30 weeks plus turn around time. You should also plan to spend some extra time doing research so that you can do the supplementary exercises and the application work needed to write a good essay from personal experience.

There are quite a few exercises within a module that you must submit to your marker/tutor and while this will help you in the long run get better grades, it does take more time to complete. Of course, how you answer the six other time consideration questions is also important.

INTEGRATED SCIENCE

The Integrated Science course has two components - the modules and the labs. You should successfully complete the work in both of them before writing your CXC final exam. Attendance at the face-to-face sessions in integrated science is compulsory as you are being continuously

assessed as you work through your course and these marks will be considered as part of your final exam.

The integrated science course has 37 modules for learners and one for the marker/tutor on the school based assessment experiments. Many experiments are conducted throughout the course both at home and in face-to-face sessions in a lab. Of those experiments conducted in the lab, specific ones are graded for your continuous assessment. Your marker tutor will advise you further about this procedure.

The 37 modules which you will study have 158 lessons. The course developers estimated that it will take you approximately 184 study hours, 92 revision hours and 37 EMT exam hours to complete the non lab section of the course. This means that you should find a minimum of 313 hours for your science course.

If you study 2 hours per day, five days per week or 10 hours per week, it should take you a minimum of 32 weeks to complete your science course. Remember though, that this does NOT include your school based assessment face-to-face sessions held in the laboratory nor the turn around time you need to consider.

As with the other course, science learners should also factor in the time needed when answering the six questions under the next section OTHER TIME CONSIDERATIONS.

OTHER TIME CONSIDERATIONS

Of course there are other time considerations which you must be aware of before mapping out a pacing plan for yourself. Other factors to consider include answers to the following six questions.

1. GOING OVER MY EMT'S

How long do I take to go over carefully my marked EMT from my marker/tutor with the answer key so that I can study the comments made and check the answer that I wrote with the suggested one?

No doubt the answer to this question depends on each individual learner, but it could make the difference between a level 2 or a level 3 pass later on. You should take the time to correct your work and respond to your marker/tutor's comments, not just examine your grade but see where you lost marks!

2. CONTACTING MY MARKER/TUTOR

How often do I phone my marker/tutor when I am having problems? Do I take the time to write down my questions or concerns in my journal so that I can discuss the questions later on the phone or at a face-to-face session?

Good independent learners who learn at a distance take the time to do this because then they are taking best advantage of the student supports resources available for them.

3. FACE-TO-FACE SESSIONS

Do I make every possible effort to attend the face-to-face sessions provided for me once per month?

Attendance at these sessions is expected and, in the case of integrated science, compulsory. You now have all the planned dates between now and when you write your CXC exam in May/June. What arrangements do you need to make so that you can gain maximum benefit from these sessions?

4. REWRITES

If your grade on an EMT or part of one is below 65% your marker/tutor will ask you to review a lesson, or even a whole module and then rewrite either part or the whole of your EMT. Do you revise your plans to take account of this time?

Two points need to be made here. The first is that this request is based on an educational concept called mastery learning. You are not a failure. You have just not mastered what you need to know YET. The second is that you must not feel discouraged and ready to give up. You just need to take the time to get it right the second time!

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5. STUDY-PARTNERS

Do you take the time to arrange help sessions with peers and colleagues?

Doing your work with a partner is such a good way to motivate and energize you but again this takes time and needs planning on your part. We are already finding that those learners in the CTTP that work with a study partner or check in with their principal, country co-ordinator or their marker/tutor once per week are being more successful and motivated than those who try everything alone.

6. USING YOUR JOURNALS

Do you write errors and recommended revisions in your journal and report them to your marker tutor? Do you fill out the end of module feedback sheets carefully and accurately?

This takes some time too but then you did agree to help field-test both the modules and the process with OCOD. Nothing in life is ever really free so you can consider this your way of paying back OCOD for the modules, your CXC exam fees and the support you receive from OCOD staff. Remember too that we are trying to make these distance learning courses as accurate as possible for others who will follow in your footsteps.

APPLYING THE INFORMATION

Many of you began preparing for your course in July 1990 when you completed your five year educational plan for the student supports consultant. You really learned how to learn by establishing a study environment that would work for you. You prepared your family and friends to accept your new role and responsibilities as a learner. You met with your marker/tutor and your fellow learners in October and began doing work from your text books.

By the time your received your first set of five modules in February/March 1991 you were ready. By June 1991 some of you had made yourselves a pacing schedule and were well into your course work. Many others however experienced a multitude of problems or had set other priorities and were seriously falling behind.

The August 1991 workshop took care of many of the problems you were having and it seems that most of you, if you began your studies in early 1991, will be ready to attempt your CXC exam in May/June of 1992. Those of you in Maths or English may need until January 1993 to prepare yourself adequately for a level 1 or 2 pass in those subject areas. Some of you even left but came back again realizing that you may have given up on yourself for a brief time but OCOD didn't.

Now, you just need to persevere. Check your study schedule again. Make up a new one if you need to, but keep on going!

EXERCISE 1

Based on the information from table 1 and your answers to the preceding six questions, use a pencil to fill in the modules that you are working on, or have worked on in the space provided beside the weeks listed. You may also want to fill in the dates of your face-to-face sessions with your marker/tutor that have been planned between now and the time you expect to sit your exam.

You will notice that I have purposefully used week 1 as the time of the 1991 Learner workshops. This was done for a purpose because many learners felt at that time, that they were too far behind to complete their course successfully in time for exam registration. I wanted to show those learners, that if they started in August 1991, rather than when they actually began in February/March 1991, they could still do what was expected of them and accomplish their goals.

When you have completed your plan, discuss it with your country co-ordinator, your marker/tutor or someone else who will help you stick with it. Good Luck!

CONCLUSION

If you found this pacing booklet helpful, please write a few notes in your journal and share the information you wrote with your country co-ordinator. Thank-you! Good luck with your continuous planning.

CTTP Project Co-ordinator

Helen Buckley

MY PERSONAL PLANNING SCHEDULE FOR MY MODULES

Week	Dates 1991	Modules to Study/Complete
1	August 18-24	
2	August 25-31	
3	September 1-7	
4	September 8-14	
5	September 15-21	
6	September 22-28	
7	September 29 - October 5	
8	October 6-12	
9	October 13-19	
10	October 20-26	
11	October 27- November 2	
12	November 3-9	
13	November 10-16	Marker/tutors will recommend to OCOD those who have completed successfully approximately 1/2 of their courses.
14	November 17-23	Country Co-ordinator will register those recommended learners to sit their CXC exam in May/June '92.
15	November 24-30	
16	December 1-7	
17	December 8-14	

Week	Dates	Modules to Study/Complete
18	December 15-21	
	December 22-28	Do you deserve to take one week off or will you use this time to catch up? You answer!
19	December 29-January 4	
	1992	
20	January 5-11	
21	January 12-18	
22	January 19-25	
23.	January 26-1	
24	February 2-8	
25	February 9-15	
26	February 16-22	
27	February 23-29	
28	March 1-7	
29	March 8-14	
30	March 15-21	
31	March 22-28	
32	March 29-April 4	
33	April 5-11	Write regional mock exam.
34	April 12-18	
	April 19-25	Review for exam
	April 26 - May 2	Review for exam
	May 1 - June 30	Review for and sit your CXC exam.

CTTP JOURNALS

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INTRODUCTION

Best wishes for a happy, healthy and very successful 1992! I am pleased to note that the majority of you have been busy working on your CXC course with OCOD/CTTP. I hope that you will continue your brisk pace as your examination time approaches this year.

Many of you have indicated your concern about keeping a journal. You don't know what to put in it. You don't know what it's for. Well, let me explain.

YOUR STUDY BOOKLET

First of all, look at Step 13 on page 10 of your study booklet which you received with your first set of modules. Some ideas are listed there so you can refresh your memory.

LEARNER FEEDBACK

A journal can be used for many things, but the main thing we want to use it for is to obtain written feedback. In this project we have designed three ways of receiving written feedback from learners.

1. Your comments to your Marker/Tutor on your EMT cover sheets. These comments should be specific to your EMT.
2. Your written module evaluation form that should now be attached to every EMT that you do. This form replaces those questionnaires that you said you didn't like. You are expected to complete them after each module and send them to your Marker/Tutor.
3. Your journals.

WHY DO WE WANT WRITTEN FEEDBACK?

To measure the success or failure of this project, we need things in writing - lots of things in writing. Of course, we will eventually be able to tell the Ministers of Education in your countries, the OECS education officials and the administrators and funders of this project in Canada, how well you did as a result of writing your CXC exam after studying these courses. But that is not enough!

We are field-testing both the content of the modules and the whole distribution process so we need to know what we have done well and where we may have gone wrong. We also want to share our successes and our failures with others in distance education so that they can repeat the things that work and avoid the things that don't! Let me give some examples.

EXAMPLES OF CONTENT AND PROCESS FEEDBACK

So far because of your written feedback, we now know a lot about your reactions to our project.

1. Module 3 in Maths on problem solving needs to be covered in a face-to-face session as well as by individual learners at a distance. (content and process feedback).
2. Learners in the CTTP benefit from face-to-face sessions. The Integrated Science labs for the School Based Assessment must be held in a school lab and this is possible only on a Saturday. This of course poses a problem for our Seventh Day Adventists learners.
3. Learners need constant contact with their Marker/Tutors to help them with pacing their study times. (process feedback).
4. There are communication problems that constantly need to be sorted out because not all learners nor all schools where they work have telephones which can be used for telephone tutoring. (process feedback).
5. Many of you work at another job to supplement your income as unqualified teachers. This has caused some people problems with completing their work as planned. (process feedback).
6. Your Marker/Tutors are all doing a great job but some are taking a little longer than you would like returning your graded assignments. (process feedback).
7. Some social studies assignments might need to be re-written as teachers in remote areas have no access to the information requested during working hours. (content feedback).
8. When recruiting learners in the future, perhaps it is better to select two per school as we are finding that those learners who study with a partner are doing better with their pacing (motivation) and their grades (EMT marks) than those studying alone. This was true in June. Is it still true now? (process feedback).
9. Future Marker/Tutors and Country Co-ordinators need to spend more time during their training process on developing counselling skills as many learners have personal/family problems that they need help with in order to make them more effective learners. (process feedback).
10. There are a lot of modules in all four subject areas that need further corrections before being sent to new learners (spelling errors, typing mistakes, answers not matching the questions, profile points missing in EMT answer keys, diagrams not matching the text, inaccurate estimates for the amount of time needed (content feedback).

I'm sure by now, you get the idea of some of the kinds of written feedback you are expected to provide as a CTTP learner.

Telling your Marker/Tutor or Country Co-ordinator is not enough; you have to write it down! That's where the journals came in.

CONFIDENTIALITY AND YOUR JOURNALS

Your journal is like a diary. Some information can be shared with anyone (e.g. there is a spelling mistake on the diagram on IS-01-02 p.7) Other information should only be shared with your counsellor(s). (Your Marker/Tutor, Country Co-ordinator, Student Supports Consultant or Project Co-ordinator). These are usually personal things which are causing you stress thus making learning difficult - family problems, marital problems, health problems, economic problems etc. Most of you

talked about these in your orientation sessions with the Student Supports Consultant, your Country Co-ordinator or your Marker/Tutor.

Writing some of these personal problems in your journal may even help you solve them as long as you can keep your journal private. Keeping a journal will also help you to be a better writer because, the more you write to express yourself, the easier the writing process becomes. This frequent practice could even help you when writing essays and/or paragraphs in your exams.

WHAT WILL WE DO WITH THE INFORMATION?

One of my jobs as Co-ordinator of this OCOD/CTTP project is to monitor the content and the delivery process of the modules. This means writing reports. The Marker/Tutors, Country Co-ordinators, National Advisory Committees, Consultants, Administrators and Funders in Canada all have access to these progress reports. Because of this, you can see them too when you next visit your Country Co-ordinator's office. I just report on patterns or trends which might appear in 100 journals. I do not mention any names or countries involved so everyone's personal problems remain private. Let me give you an example.

During my twenty years in the field of adult education, I have noticed that adult learners do better with their studies if they have the support of their families. Other people in the field of adult education have also noticed this fact. Many articles and some books have been written about this subject.

Is this true in the CTTP? How can we prove that this is so? If 70 of you wrote a description of your study environment at home and explained how you got your family to leave you alone for 2 hours each day, then we could say they were supportive. How else do they support you with your studies?

One Canadian adult learner once wrote in her journal for me that she was having problems with disciplining her teenage daughter. The daughter was also having difficulty with her work at school and was scoring low grades. Since her mother decided to go back to school, the two of them worked on their respective homework assignments from 7 p.m. till 9 p.m. each night. Eventually, not only did they both get good grades, but they also found that they were both getting along better with each other! The daughter was delighted when I asked her to come in to where her mother went to school so I could give her a progress report on her mother's work! This positive result came about through journal writing and served as an example about supportive families. Other single parent mothers have also tried this technique and it has worked well for them too. It all started with one personal journal entry! Confidentiality was maintained and many people benefitted.

USING YOUR JOURNALS

I hope to be visiting your face to face sessions in either January or February of 1992 and would like to borrow your journals for a few weeks. During that time your Country Co-ordinator and I will read through what you have written and see if we can find patterns or trends that will help us improve the content and delivery of the curriculum materials in our project.

At that time we will:

- fill out course revision forms on all the content areas that you have identified as being problematic.
- refer these to the content editors and see if/how we should re-write the modules that you are testing for future learners.
- complete course revision forms for all typing errors, spelling mistakes, diagrams, labels etc. and refer these corrections to the regional office staff for corrections.
- look for any graphics or text that may not be culturally relevant or that offends you in any way.
- look for similarities in personal problems. We can then address these problems for future learners in their orientation sessions or during their face-to-face sessions.

CONCLUSION

I hope that you can now see the importance of jotting down information, thoughts, feelings, and especially your problems in your journals. I know you all have opinions about Caribbean education in general and the CTTP in particular. Some of you were even willing to have the Student Supports Consultant or myself tape interviews with you. It is important to be critical so that we can learn from our mistakes and reinforce what is well done.

I am looking forward to reading your journal in 1992. I have attached a list of nine topic areas which you might consider commenting on.

1. Your work environment.
2. Your home environment.
3. Your study environment.
4. Topics of study.
5. The modules themselves.
6. Your learning process.
7. You, the Learner.
8. Barriers to success.
9. Your opinion about the future.

Thank-you.

H. BUCKLEY

OCOD/CTTP Project Co-ordinator

POTENTIAL JOURNAL TOPICS

A. YOUR WORK ENVIRONMENT

1. Why did you become a teacher?
2. What is your classroom like?
3. What are your students like?
4. What subjects do you enjoy teaching the most? Why?
5. What subjects do you enjoy teaching the least? Why?
6. Describe your school and a few of its problems.
7. Describe the community in which your school is located and a few of the problems you encounter there.
8. Describe any extra-curricular activities in which you are involved.
9. What do you enjoy the most about being a teacher?
10. What do you enjoy the least about being a teacher?

B. YOUR HOME ENVIRONMENT

1. What was life like for you as a child?
2. Describe your family. How many brothers and sisters do you have? What are they doing now?
3. What do/did your parents think about your becoming a teacher?
4. If you have a family of your own, tell a little about them. How many children do you have? How old are they? What does your spouse/ boyfriend/girl-friend do in work time? Spare time?
5. In what ways are your family encouraging you to be an adult distance learner?
6. In what ways are your family discouraging you from reaching your learning goals?

C. YOUR STUDY ENVIRONMENT

1. Describe your study environment. Where do you study? When do you study? How often do you study your modules?

2. In general, what do you like best about the modules you are studying?

3. In general, what do you like least about the modules you are studying?

D. TOPICS OF STUDY

1. List five topics which you found particularly easy in the modules. Why were they easy for you?

2. List five topics in your modules which you found most interesting to study. Why were these interesting to study. Why were these interesting to you?

3. List five topics which you found particularly difficult in your modules. Why were they difficult for you?

4. Is there something that OCOD/CTTP could do to make them less difficult? What?

5. When we designed this project, we had hoped to include audio cassette tapes to supplement the materials. What parts of the modules you have already studied could be enhanced by including audio tapes?

E. THE MODULES THEMSELVES

1. Do you find the introduction to each module useful? Why? Why not?

2. Is the Table of Contents for each module useful to you?

3. Do you read the objectives page before you begin your work? Does the lesson "deliver" what it says it will? In other words, by the end of the lesson, are you, in fact, able to do what the objectives say? Why? Why not? Give examples.

4. Are the self-check checkpoints at the end of most lessons helpful? Do you study the model answers and compare them to what you wrote? Do you correct your own work when you have made errors or left things out?

5. Do you study and revise your work before writing your end of module test?

6. Do you like the cartoons in the modules? Why? Why not? Give some examples when expressing your opinion.

7. Are the diagrams, drawings, charts helpful? Give 3 examples of some which you found particularly helpful. Give 3 examples of some which you found confusing.

8. Do you find the mark sheet located after the cover of your EMT useful? It was intended to show you which sections of your EMT that you lost marks on. Should we continue to use this page when writing future modules?

9. Do you write your EMT's at home under exam conditions timing yourself for parts of your test or your whole test? In general, are the course developers timing estimates accurate?

10. Do you use the EMT module answers to check your work once it has been returned to you?

11. Do you now understand the CXC marking system which uses profile points to grade your work?

12. Should we continue to include the profile points in either the EMT itself or in the answer key only?

F. FOR THOSE STUDYING INTEGRATED SCIENCE

1. How are your home experiments going? Are you able to conduct them at home without difficulty? Explain.

2. How are your lab experiments going? Do you have the necessary supplies to conduct these? How many test tubes have you broken?

3. Do you thoroughly understand the school based assessment procedures explained by your Marker/Tutor? Is your school based assessment module helpful?

G. YOUR LEARNING PROCESS

1. Based on your interaction with your Marker/Tutor, write a job description for him/her.

2. How does your Marker/Tutor encourage you?

3. Are your Marker/Tutor's comments on your EMT cover sheets helpful? Why? Why not?

4. List and explain three ways that your Marker/Tutor could assist you more with your studies.

5. List and explain five ways that your Country Co-ordinator has helped you as a CTTP Learner.

6. Discuss three ways that your Country Co-ordinator could assist you more as an independent distance learner.
7. What is your opinion about the quality of your textbook(s) for your course?
8. Are there other textbooks or reference books which you use or know about that you could recommend to your Country Co-ordinator for a local CTTP library? Please list them.
9. Describe some of the outside reading/ research that you have done to assist you with the content of your course.
10. Explain how you felt if/when you were asked to rewrite an EMT. Did this process help you to understand and improve the second time? If so, explain how.

H. YOU, THE LEARNER

1. List and explain the three most significant hurdles or problems you had to overcome as a learner since starting your CTTP course.
2. How did you overcome these problems?
3. How did you arrange the 10 hours per week needed to successfully study the modules? How many times did you change your initial study plan? Explain.
4. Do you find your study strategies improving over time? Explain.
5. Do you find your time management skills improving over time? Explain.
6. What strategies are you using to combat stress as an adult learner?
7. What advice would you give new learners interested in the CTTP course?

I. BARRIERS TO SUCCESS

1. Many adult learners, especially women, have experienced problems in the following areas. Do any of these hurdles or barriers keep you from being an effective distance learner? Perhaps you might like to comment on your own circumstances in relation to these hurdles.
   - Communication Problems
   - Transportation
   - Child care
   - Economic concerns
   - Pregnancy
   - Illness
   - Family problems
   - Poor-self image as a learner
   - Weak study skills
   - Weak time management skills
   - Weak stress management skills
   - Tenacity
   - Weak decision-making skills
   - Health concerns - (e.g.) neglecting yourself regarding nutritious food, adequate sleep, exercise, etc.

J. YOUR OPINION ABOUT THE FUTURE

1. Some people have suggested that OCOD expand the CTTP in the future to include all interested untrained teachers in all OECS countries. What do you think?
2. Others have suggested that OCOD expand the CTTP to include in-service education for other professionals as well - secretaries, health care workers, nurses and the police force. What do you think?
3. Still others have recommended that the CTTP write other CXC 'O' Level courses. Courses mentioned so far have been: Course work for Forms 1,2 and 3, plus CXC level courses in French, Spanish, English Literature. What do you think?
4. Eventually, learners will be expected to pay for a part or all of their course. How much do you think learners should pay?
5. Do you have any other opinions about any aspect of this project? If so, devise a title and write about them too in your journal.

Appendix #4 **Relevance and Functionality**

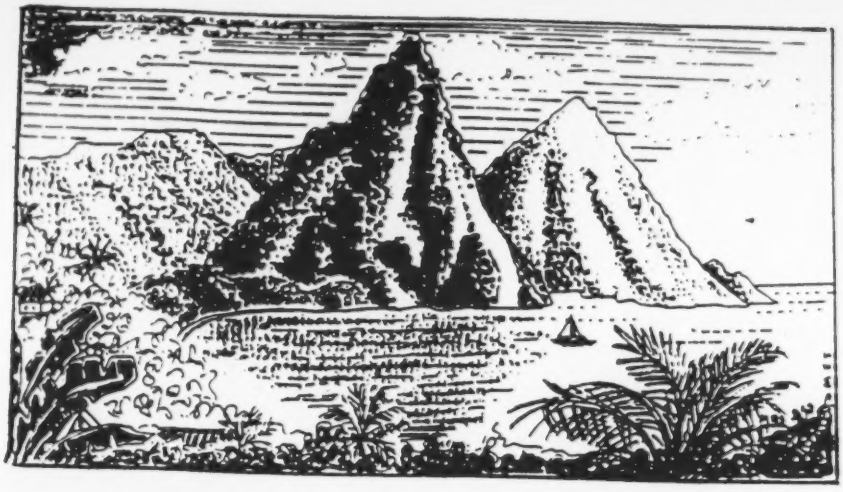
Sample 04-01: Various Types of Graphics Illustrating a West Indian Flavour: Including Gender Issues

Sample 04-02: Readability Levels of CTTP Courses

Sample 04-03: Integrated Science Home Experiments

DOMINANT OR MAIN IMPRESSION

Exercise 1



Read the following passage:

The volcanic island of St Lucia may be divided into two physical regions, one of which is the south and centre of the island. This section of the island is young and mountainous. A number of

CLASSIFYING DETAILS IN A WRITER'S DESCRIPTION

Here is an example of the description of an incident.

On the 11th July, 1981 at about 8:05 a.m., Mr. Roy Harding was in an accident, which pinned him to the driver's seat of his new Suzuki vehicle. The accident occurred at Grande Riviere ten miles from Roseau.

A twenty-seater bus had run into Mr. Harding's car. As a result of

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INTRODUCTION

In this lesson you will learn how to interpret descriptions of animals and objects.

Remember that the main purpose of descriptive writing is to give the reader a clear idea of who or what is being described.

Read the following passage.

> *Suddenly, I saw this strange black creature with many eyes. It had several legs with claws. The jaw was rather unusual. I continued my close observation of the animal and noticed something shiny coming out of its body. It was the first time that I had seen such a terrible creature.*

Did you understand the description? Were you able to picture the strange creature? If you had difficulty in imagining what the creature was, the problem is in the description and not in your interpretation. Do you agree?

Let us look at another description of the same creature:

> *It was indeed a strange animal. It was short and fat and was about three centimetres long. It had as many as eight legs. There were claws on its feet. Its jaws looked like little legs. Its skin, covered with hair, was quite hard. As I watched closely I noticed that it was producing silk from the back of its body.*

Were you able to identify the creature? You may have guessed that it was a crab, a spider or some other similar animal.

However, there are some clues which should have helped you to identify it as a spider. The obvious clues are that it had eight legs, and produced silk from its body. You were then able to create a better picture of the creature.

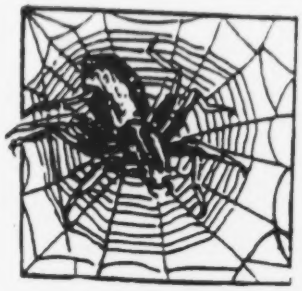
UNDERSTANDING DESCRIPTIONS - SELECTION OF DETAILS

Exercise 1

Read the above description a second time then answer the questions.

(Answers to all exercises are at the end of the lesson).

1. How long was the spider?
2. What was its shape?
3. How many legs did it have?
4. What did it have on its feet?
5. What did its jaws look like?
6. Which word describes the quality of its skin?
7. What was the colour of the skin?
8. Where did the silk come from?

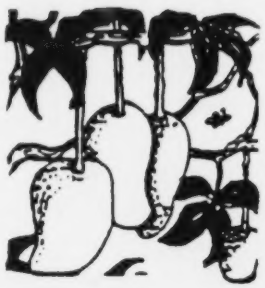


CHECKPOINT

Question 1

Read the following passage:

Mangoes vary in weight, shape and in the colour of the skin. A mature mango from some varieties may weigh about 150 grams, while in other varieties, a full grown mango may weigh as much as 500 grams. The upper part of a mango, the part that is attached to the stem, is usually larger in size than the lower end.



Some varieties are somewhat round. In other varieties the mangoes are long. The skin of a young mango is usually green in colour but may change its colour as the mango ripens.

Mangoes are mostly eaten when they are ripe. The 'Bombay' and the 'Julie' are probably the most delicious. Both are sweet and juicy. The Long mango is used for many purposes. Like the Bombay and the Julie, its flesh is also sweet and juicy when it is ripe. Mature Long mangoes are often cooked or preserved.

Understanding and Using Language, 1988

A. Are the following statements True or False?

1. Mangoes are all the same weight, shape and colour.
2. A fully grown mango may weigh 500 grams.
3. The part of the mango attached to the stem is smaller than the lower end.
4. Some mangoes may be long; others may be round.
5. The skin of a young mango changes to yellow as the mango matures.
6. The 'Bombay' and 'Julie' are the only two varieties of mango.
7. We can cook or preserve the flesh of one type of mango.

B. List the descriptive details about the mango that appeal to the sense of:

1. sight
2. smell
3. taste.

C. How has the writer arranged the details about the mango in Paragraphs 1 and 2?

Fig 09-01: Functions of Government

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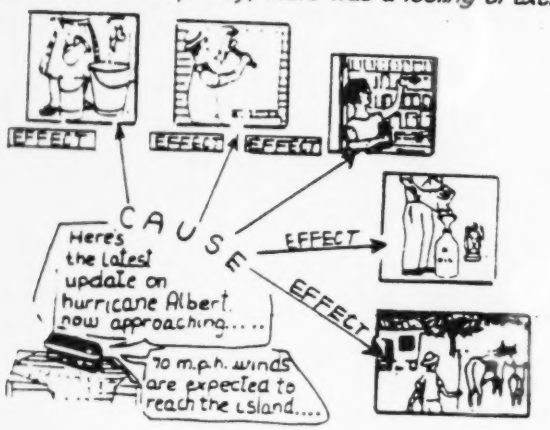
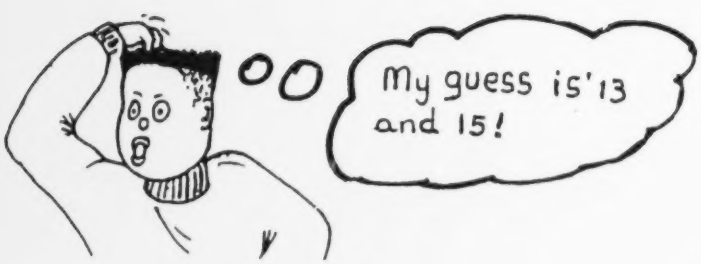
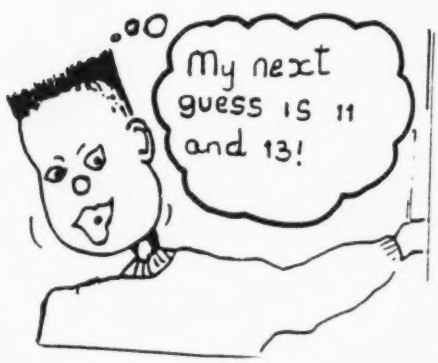
Exercise 2 : The Hurricane Warning

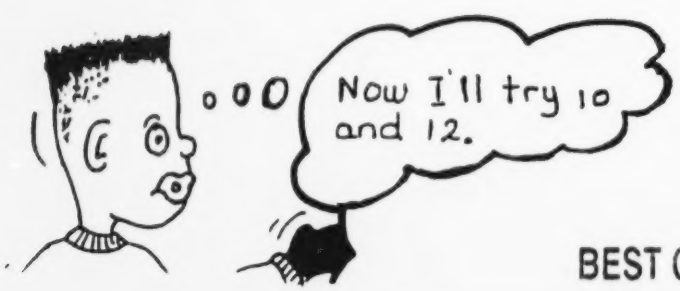
As a final activity in this lesson read the passage which follows and identify the **signal words.** Draw two columns as you did in the previous exercise and use them to write your causes and effects.

A hurricane warning was announced. As a result, all stores were asked to remain open for two hours beyond closing time. Since the electricity would be turned off indefinitely, the inhabitants were advised not to buy too many frozen items. Water would also be shut off, and so everyone was asked to store as much water as possible in covered containers. Because flooding usually occurred after the heavy showers, people living in low lying areas were evacuated to higher ground. Most of the inhabitants had never witnessed a hurricane, consequently, there was a feeling of excitement in the air.









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towards them. Adolescent behaviour is likely to be unstable and unpredictable. Adolescents often lose some emotional control and are easily upset. At one time they appear full of enthusiasm; at other times they are tired and bored.

As they become aware of their development, adolescents experience the desire to break away from adult authority and manage their own lives. Adolescents still love their parents, but become critical of them. They are less willing to accept their advice and authority. The peer group has great influence on behaviour. Many adolescents go through a stage of 'hero worship', i.e., a strong admiration for another person. This may be another adolescent, a teacher, nurse, film star, pop singer or other persons in the society. At this stage, strong attachments to the opposite sex are sometimes formed.

What have you found out from reading this extract?

Does that profile fit you when you were that age?

In what ways is it similar to or different from yours, or from that of your own children at home or at school?

Activity 1

Use the following table to report on a community and on a national project in your country in which groups cooperated. An example is provided.

SOCIETAL GOAL	PROJECT	COOPERATING GROUPS	RESULT
Improved health care	Renovation of Victoria Hospital, Castries	Kiwanis Club Rotary Club Mother's and Father's Groups Lions Club Businesses Chamber of Commerce School Groups Private citizens etc.	Fund-raising-over $1,000,000 collected
Community			
Nation			

Table 07 : Group Cooperation

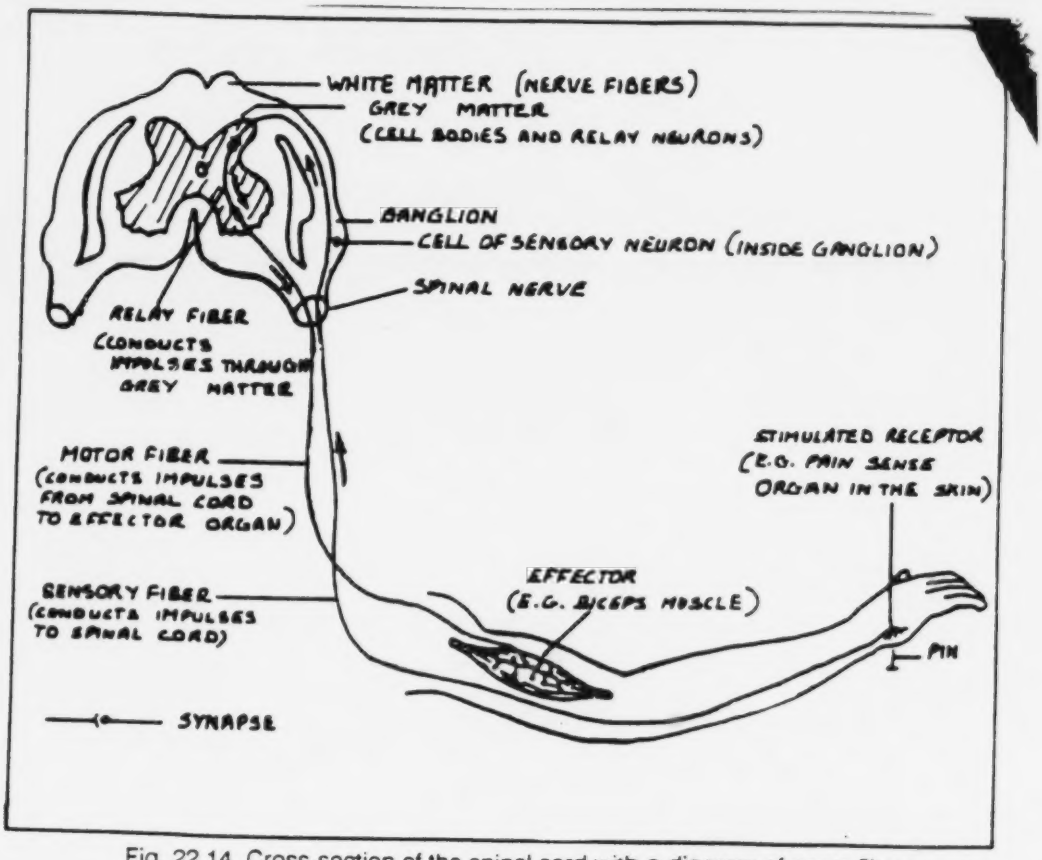

Fig. 22.14 Cross-section of the spinal cord with a diagram of nerve fibres in a reflex action

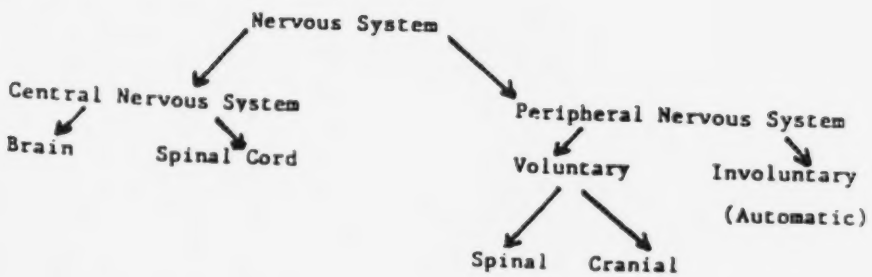

Fig. 22.21 Organisation of the Nervous System

In the previous lesson you identified some of the roles associated with men and women in most Caribbean societies. Patrick, you know from your experiences in Caribbean society, that, as a male, you are expected to dominate women and children and hold political power. While you, Patricia, are supposed to be submissive and depend upon the male for economic support. Patrick, you are expected to be sexually aggressive to demonstrate your manhood. Patricia, you are not expected to be assertive or domineering, nor challenge men physically.

Inequality in sex roles it is believed, is very pronounced in societies in which the female is supposed to feel economically dependent upon the male. Two well-known sociologists, Karl Marx and Friedrick Engels, believed that Patrick and Patricia could become socially equal. This, they argued, will happen when Patricia becomes economically independent, and she no longer has to be tied down to housework or the 'minding' of children.

PATRICIA, MONDAY IS A HOLIDAY, LET'S GO ON A FOREST WALK WITH MY CLUB.
ME? AND WHO WILL LOOK AFTER MY CHILDREN AND DO MY HOUSE WORK?
LEAVE THE CHILDREN WITH THEIR FATHER. HE CAN LOOK AFTER THEM.
WHAT GIRL! YOU WANT PEOPLE TO CALL ME LAZY AND SAY I DON'T LOVE MY CHILDREN!

Fig. 04 : 3. Culture Patterns and Gender Roles.

Many contemporary societies try to achieve some measure of equality between the sexes by creating more jobs for women, providing child care services, spreading information on the importance of planned parenthood and even giving training in self-defence.

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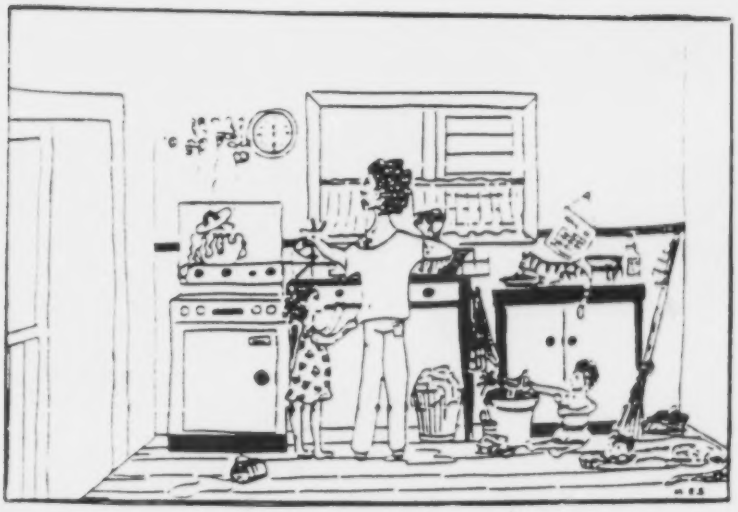

Fig. 02 : 9. ~~Attitudes~~ Marriage Today

The male is still considered the bread-winner, although many wives work away from home and share financial responsibilities. Husbands continue to believe that domestic chores should be done by women. Very few husbands help at home. Most marriages are based on **'love'.**

Fig 08-11 The Family

2.. What function of the family is shown in the picture ?

Fig 08-12 Family Harvesting Coconuts

3. What function of the family is shown in the picture?

Fig. 02: 6. Child Care Today

Today, in the Caribbean, child care and socialization are normally the jobs of women. The women may be grandmothers or other female relatives or siblings. During slavery, men played marginal roles as fathers or perhaps even as husbands where marriage was permitted.

Some sociologists suggest that this planter/slave/father relationship with their children gave rise to a tradition of irresponsibility towards their offspring. This irresponsibility is still evident today in Caribbean society.

Fig. 06-07B: Cooperation in the field

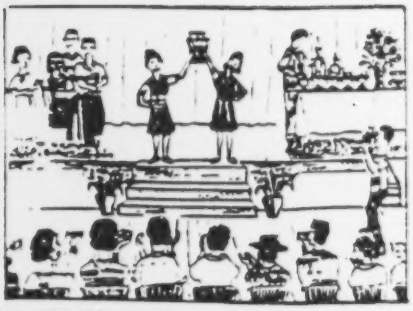

Fig. 07-2A Individual Competition can be Positive.

Mary and Joan, who attended different primary schools, entered the same high school in the same year. Both were excellent students. Early in the school year, each realised that, to come first in the form, she would have to work very hard. And they did! In fact, during their entire school careers, they vied for top place in the form. Between them, they walked away with all the prizes.

Fig. 07-2B Mary and Joan are still friends.

Today, Mary is an outstanding doctor and Joan is a marine biologist with published books. They are close friends.

Such is the nature of competition at a micro (small) level. Let us look at it in a wider context.

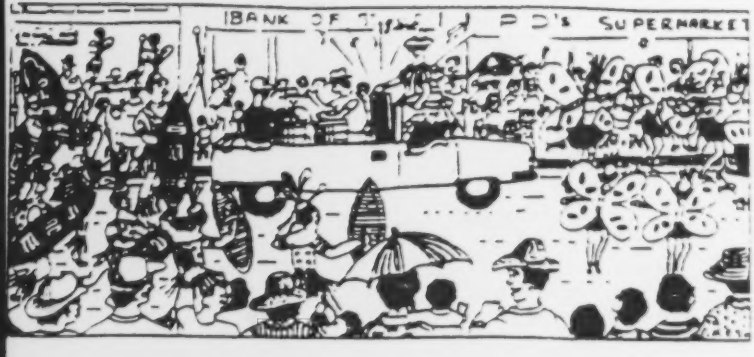

Fig. 02 : 7. Economic Support Today

Fig. 04. The Role of Women in Society Today.

[Note that the letter is not written in the kind of English we expect you to write in this course. It is, however, what many people use among friends].

Pichelin, Dominica.

Nov. 4, 1961.

Dear Gertrude,

Auntie, they tell me you coming home for Christmas. Girl, how I longing to see you! Those two years without my dear little cousin seemed so long. All now, Auntie, Grandma, Uncle Garcon and Nenen cleaning out the house and preparing for you.

But girl, hear that! One day when I was going to the garden, I hear Mable and Caesarina saying that you coming home to show off. They too fast and forward. When you reach here, show them you come from big country.

When you coming down from the plane, keep your winter coat on in case anybody around the airport know you. Boysie agree to come for you, an make sure when you stepping out of the car into the house, you still wearing your coat. All of them near home will gather around to see what you look like and what you wearing. Say, "Hello", to them loud and clear and put some American accent in your voice. Yes, let them hear you can speak American.

Remember Miss Audrey, the American white lady who used to come down by Mr. Smith? When she tell you "Hi!" that "hi" didn't stop until you hear about twenty "i's" from the end of "hi" and each one was higher than the other. When she use to say "how are you?", remember how we use to say it sound like music? Well, do your voice like hers. When you talk to the people who come to look at you, everybody will know you is now American.

What kind of clothes you planning to bring home? People here wearing all kinds of Acid wash, so bring styles fancier than that. Don't have them say you not in style. Leila come from England last month and everybody saying it's as though she never go away although she spend 18 months in England. Her voice the same Pichelin way and she even wearing same clothes she leave here with. Imagine that! Jackie and Nesby tell me they hear the first food the girl ask for when she reach home is broth with yam and green figs. We laugh so much!

If anybody offer you yam and dasheen and fig and other ordinary food when you go to their home, don't eat it. Tell them is french fries, hamburger, pizza and Pepsi you accustomed to. We already start buying potatoes, macaroni, and soft drinks. Nenen didn't go to garden today. She went to Roseau to go to the Credit Union to take

INTRODUCTION

The Caribbean, although small in land area and population, has produced a number of distinguished personalities. Many of the Caribbean's truly great leaders steered their careers in one direction and then adjusted and adapted to meet the needs of the region. As you read the portraits of some of the selected leaders you will notice that most of them began with one profession then continued their careers in another. The leaders have displayed competence in the professional areas chosen. You may be able to discern the type of leadership model which each leader adopted. You may also be acquainted with some of the activities in which these leaders have participated.

1. MARY EUGENIA CHARLES

Fig.11-12: Mary E. Charles

Our first leader to be discussed is the Prime Minister of Dominica, Eugenia Charles. The Caribbean's first woman Prime Minister, was born on May 15th, 1919 in the village of Pointe Michel, three miles from Roseau. Miss Charles was educated at the Convent High School. She continued her education in Grenada and Canada.

Miss Charles, a lawyer by profession, demonstrated a keen understanding of law for over thirty years before entering politics. Miss Charles was unhappy with the political conditions existing in Dominica after the 1966 general elections. The then ruling Labour Party, with ten out of eleven seats, had very little opposition in Parliament.

Fig.10-14: A Government Housing Scheme

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3. ARTHUR WILLIAM LEWIS

Arthur William Lewis, the man who won the Nobel Prize for Economics for the Caribbean in 1979, was born on January 23, 1915 in Castries, St. Lucia.

Arthur displayed unusual academic excellence at an early age. At the age of nine years he won a scholarship to St. Mary's College. At that time he was the youngest student ever to achieve that honour.

Arthur spent much of his spare time in books. He loved reciting poetry and performed regularly at school concerts. He won the Island Scholarship at the age of 14 but was declared too young.

He worked for two years as a clerk in the Civil Service where he learnt typing, filing and office procedures.

Exercise 3 : My Early Schooldays

The picture comes from *English for Life* by *Cecil Gray*, page 144.

Imagine that you have just finished your degree at U.W.I. You were one of the children in the photograph. (1) Write down five sentences about your childhood. (2) Relate these sentences to the present.

Now check the model answers at the end of the lesson.

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READABILITY ASSESSMENT

COMPREHENSIVE
TEACHER
TRAINING
PROGRAMME

ORGANIZATION FOR COOPERATION IN OVERSEAS DEVELOPMENT

Sandra McCaig

READABILITY

I write as I walk
because I want to get somewhere.
And I write as straight as I can
just as I walk as straight as I can,
because that is the shortest way of getting there.
H.G.Wells

Readability is important in study guide material. If students fail because they cannot read the guides, the material is not useful for instruction. Readability is a combination of reader and textual factors. According to Rowntree (1990) readability depends upon using:

- a friendly, conversational tone,
- human interest,
- short,familiar words
- precise words,
- strong, active verbs
- specific, concrete references
- short, simple sentences

Roger Lewis and Nigel Paine (1985) suggest several ways of improving readability including attention to:

- paragraphs
- words
- sentences
- negatives
- passives and interpersonals.

Paragraphs

Structure paragraphs clearly around one main idea, supported by examples. The key sentence opens the paragraph and contains the main idea. Keep paragraphs between 5 -7 lines (65 -91 words).

Sentences

Keep sentences short with a maximum of 20 words. Vary sentence length. Use short, simple sentences, each containing one idea. Split complex sentences.

Words

Use short, familiar words. Be precise. Avoid words that are general, abstract or vague. Define and illustrate technical terms. Keep the number of words to a minimum. Use words, not phrases.

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Negatives: Use negatives with care. Avoid double negatives.

Passives/Impersonals: Use strong, active verbs. Avoid passives and impersonals. Address the learner directly ("I", "You").

ASSESSING READABILITY

There are many ways to assess the readability of material. Assessment may include: using a checklist (Appendix A), using a colleague or learner (Appendix B), and using a readability formula (Appendix C).

The Right-Writer computer program analyzes documents for problems with grammar, style, word usage and punctuation. It contains indexes for readability, strength of delivery, use of descriptive language and jargon. It assesses readability using both the Fog Index and the Fletcher-Kincaid Index.

The Readability Index tells the level of education a reader will need to understand the document. A good range is 6-8. A higher range means that the writing is complex and difficult to read.

The strength index measures the strength of delivery of the document's message. The index is a number between 0.0 and 1.0. A value of 1.0 indicates a very strong writing style. Reports should have a strength index of above 0.5.

Module writers completed a training program and were provided with a checklist to use for self assessment (Appendix D). The RightWriter program was used to assess the readability of the lessons in the CTTP project.

APPENDIX A WRITING ASSESSMENT CHECKLIST

How to encourage active learning

Have you set a realistic workload?
Have you kept difficult work to a minimum?
Are your expectations of the learner realistic?
Have you fully explained and illustrated difficult work?
Have you used enough self assessment questions and activities?
Is your style and approach friendly?
Have you used an appropriate tone?

How to write readable prose

Paragraphing

Does each paragraph contain one main idea?
Is this idea supported by the rest of the paragraph?
Are your paragraphs short (5-7 lines maximum)?

Sentences

Are any sentences too long or complex?
Are any sentences more than 20 words long?

Vocabulary

Have you used too many long words?
Have you used too many technical words?
Have you defined and explained any technical terms you must use? Have you used any unnecessary jargon?
Have you used any trendy or "pet" words?

Negatives/passive and impersonal

Have you used negatives with care?
Have you used the passive and impersonal with care?

Means other than prose: Have you used means other than prose to present content and support learning?

Number of words: Have you kept the number of words down to the minimum?

Checking your prose: Have you checked your prose
- yourself
- using a colleague
- using a learner
- using the Cloze procedure
- using a readability formula?

Have you made the necessary changes to your manuscript in the light of the checks? (Lewis and Paine, 1985)

APPENDIX B LEARNER ASSESSMENT

NAME DATE

TITLE VERSION

STUDENT INFO:

STARTING TIME: FINISHING TIME:

Module	Lesson	Comments	Proposed action

NOTES: Comment on style, presentation and content. Make comments on the manuscript.

WHAT WAS HELPFUL?

WHAT DID YOU LEARN?

Adapted from Lewis and Mead.(1986).

APPENDIX C

There are several readability formula available.

FOG INDEX (Rowntree,1990)

This is used mainly in education and is one of the most practical. It judges the "fogginess" of the material by the average length of its sentences and the proportion of multi-syllable words it contains. The longer the words and sentences, the higher will be the Fog Index. The danger point is an index of 12. To calculate the Fog Index:

1. Take a random sample of about 100 words.

2. Count the number of complete sentences, stopping the sentence count with whichever sentence ends nearest the 100 word target.

3. Divide the number of words by the number of sentences to arrive at the average sentence length in the passage.

4. Count all the words that have three syllables or more.

5. Apply the following formula:

2 x (av.sentence length + number long words) divided by 5

MODIFIED FOG INDEX

A modified version of the Fog Index is outlined in "How to Communicate with the Learner" (Nigel and Paine, 1985).

Take a sample of 100 words. Count all the long words (three syllables or more). Work out the average sentence length of the complete sentences within the sample. Then apply this formula.

(av. sentence length + long words)x 2 divided by 5 + 5 = RA

Jenkins (1987) suggests that a score above 20 indicates that the text is for the highly literate and that 12 and under is very easy. A score of 13-16 is easy and 17-20 quite difficult.

FLESCH-KINCAID

The Flesch-Kincaid index computes scores for reading ease and human interest and is based on a formula used by the U.S. Department of Defense.

APPENDIX D TO CREATE READER FRIENDLY WRITING

1. Choose short English words over long Latin ones.
2. Choose strong verbs rather than relying on adverbs.
3. Choose specific nouns rather than weak ones with adjectives.
4. Keep to short, precise sentences (Aim for 10 words). Vary them, including occasional questions.
5. Reinforce a personal connection through the empathic use of pronouns: you, we, us.
6. Express everything as positive rather than negative.
7. Keep paragraphs short with every sentence relevant to the first or topic sentence.
8. Give examples wherever possible.
9. Stay with the active rather than the passive voice.
10. Draw word pictures which appeal to the senses.

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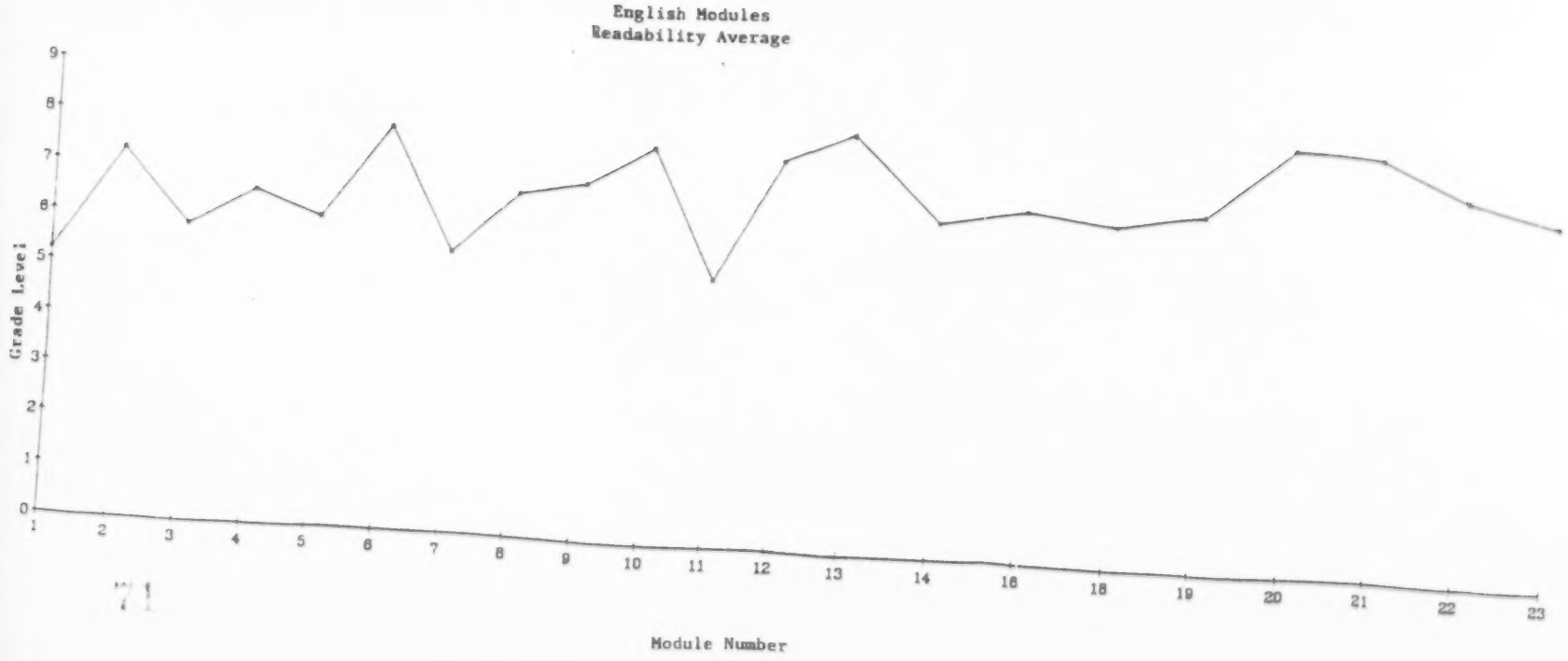
English Modules
Readability Average
Grade Level
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21
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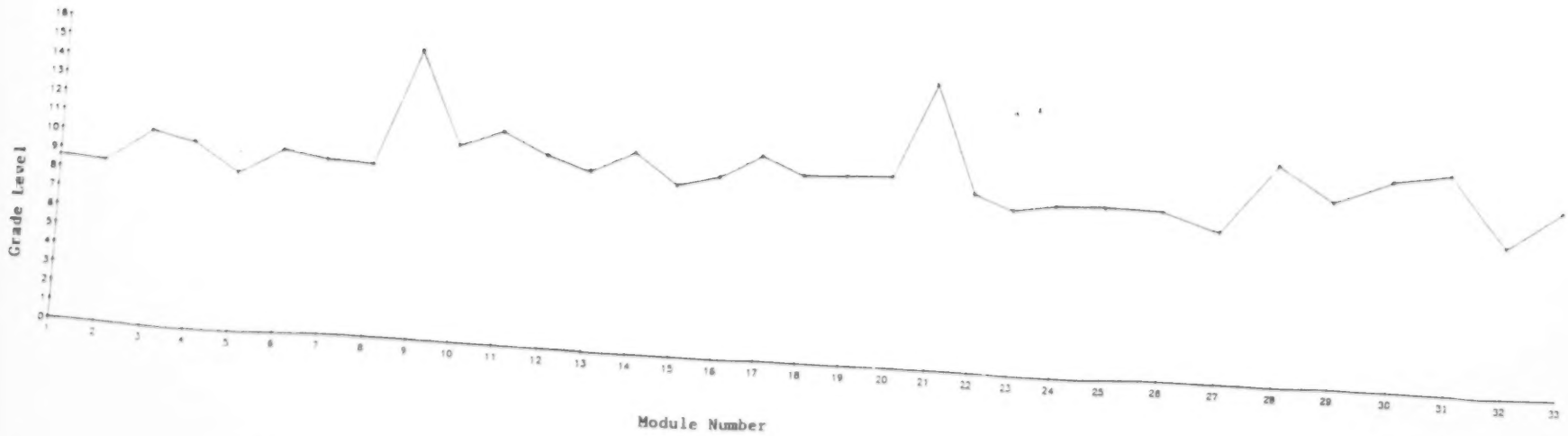
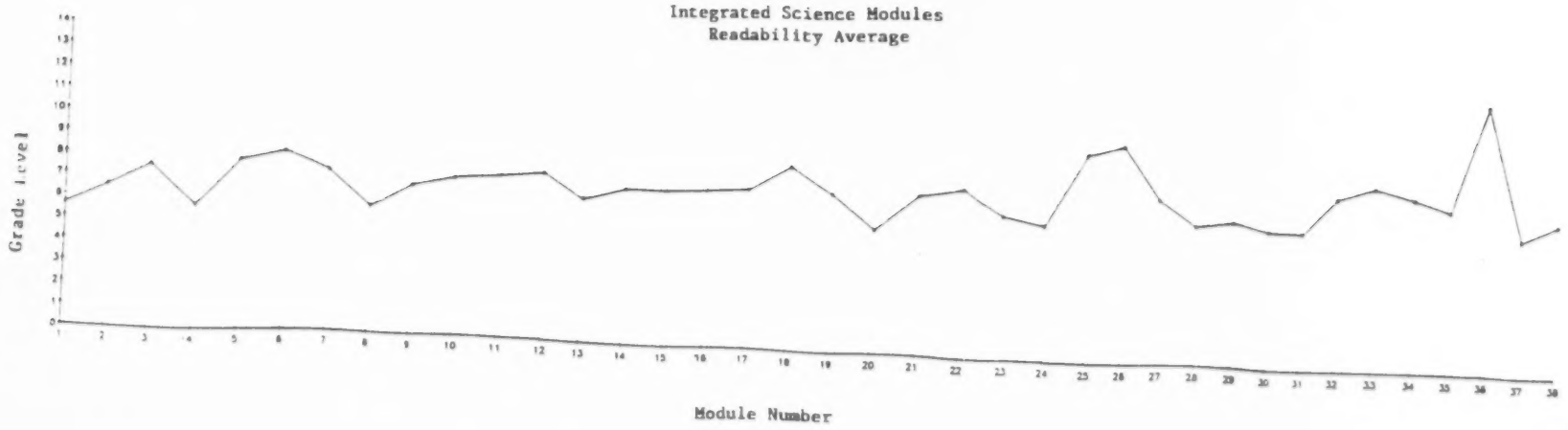
23
Module Number

Social Studies Modules
Readability Average




Integrated Science Modules
Readability Average
Grade Level
Module Number

IS MODULE 01 LESSON 01 ACTIVITY 03 SBA-10

1. To Compare the Effect of Heat on the Temperature of Water and Oil

Materials:

small saucepan
bottle of cooking oil
watch (which can measure seconds)
water
thermometer
balance (scale)

Method:

1. Weigh a small dry saucepan. Note the mass.
2. Add 500 g water.
3. Light a burner on the stove and adjust the knob till a low flame is obtained. If not, mark the setting with a small piece of masking tape.
4. Place the thermometer in the water and note the temperature and the time.
5. Place the pan of water on the burner.
6. Record your observations in the table like the table below.

Time	Temperature of Water
0 min. (starting time)	
minutes	
minutes	

Table 01:

7. Repeat steps 1 - 6, using cooking oil instead of water. (Make sure that the temperature of the stove, the saucepan, the thermomete are the same).
8. Add another column to the and Table record your results. Make up an appropriate title for the table.

7. To Illustrate the Ability of Different Types of Surfaces to Absorb Radiation

Materials:

- cardboard
- white paper
- gum
- 2 sheets carbon paper
- aluminium foil
- candle wax
- 1 lamp
- 4 coins

Method:

1. Cut four square pieces of cardboard the same size.
2. Treat each piece in one of the following ways:
   (a) Cut a piece of white paper of the same size and stick it on to one square.
   (b) Cover the second square with carbon paper, the dull side up.
   (c) To the third square, again cover with carbon paper, this time, put the shiny side up.
   (d) Cover the fourth square with aluminium foil or some other silver paper.
3. Get four coins of the same type. To the other side of each square attach one coin by means of a little melted candle wax. Try to use the same amount of wax for each one. [You may try using 2 or 3 drops of melted candle.]
4. Remove the shade from a reading lamp and turn on the light. (The filament of a lighted bulb gives off radiation.)
5. Hold each square, one at a time, the same distance (about 10 cm) from the lamp and note the time it takes for each coin to drop off.

Observation:

SURFACE	TIME
dull black	
shiny black	
dull white	
silver	

Explanation:

As the squares get hot, the wax will soften and the coins will fall off. A better absorber takes a shorter time to attain a high enough temperature to melt the wax.

Conclusions:

From the result of the experiment draw your conclusions about the relative ability of surfaces to absorb radiation.

16. Determining the pH

Materials:

pH paper

fruit juice

vinegar

soap

bleach

Hints:

(a) For powders make a solution in water.

(b) For sprays - spray on a piece of clear glass and add indicator.

Method:

1. Investigate the pH value of juices, vinegar, soap, bleaches, aerosol sprays, any other household substances.
2. List the brand names.
3. Name the active ingredient.
4. Sort them out in a table as weak acid, strong acid, neutral, weak alkali, strong alkali.

25. To Study the Effect of Different Surfaces on the Bounce of Different Types of Balls

Materials:

metre rule — masking tape

cricket ball — rubber ball

dirt or sand — water

piece of board of dimension 30 cm x 90 cm

concrete surface

N.B. This experiment should be done on a concrete surface close to a wall or wooden frame.

Method:

1. Put the metre rule to stand straight against the wall or wooden frame. Use masking tape to keep it in place.

2. Release the cricket ball from a predetermined height and observe the height to which it bounces. Repeat 2 more times, releasing the ball from the same height each time. Record your results in the table which follow.

3. Find the average of the three readings and record it in the column labelled 'AV'

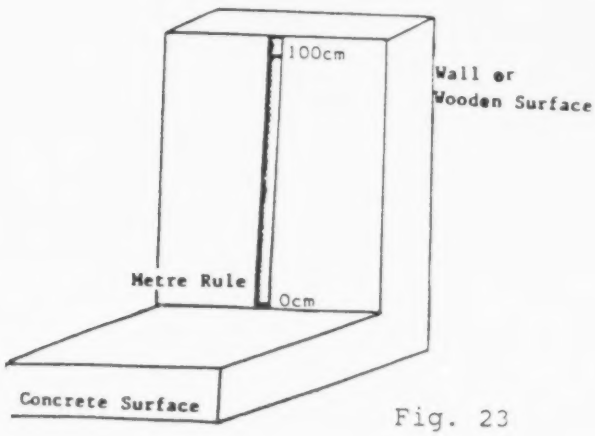


Fig. 23

4. Now place the piece of board on the concrete surface and repeat Steps 2 and 3.

5. Remove the piece of board and pour enough dirt or sand in its place so that the concrete surface is completely covered. Repeat Steps 2 and 3.

6. Wet the dirt and repeat Steps 2 and 3.

7. Do Steps 2 - 5 again, this time using the rubber ball instead of the cricket ball.

A. Cricket Ball

Type of surface	**Height of bounce**			
	1st	2nd	3rd	AV
Concrete				
Wood				
Dry dirt/sand				
Wet dirt/sand				

Table 09: Comparing Type of Surface and Height of Bounce of a Cricket Ball

B. Rubber Ball

Type of Surface	Height of Bounce			
	1st	2nd	3rd	AV
Concrete				
Wood				
Dry dirt/sand				
Wet dirt/sand				

Table 10: Comparing Type of Surface and Height of Bounce of a Rubber Ball

Answer the following from your results:

i) Which surface gave the highest bounce? _____

ii) Which ball gave the highest bounce? _____

28. Investigating Parts of a Flower

Materials:

2 flamboyant flowers 1 hand lens 1 scalpel/knife

Method:

Collect two flamboyant flowers [delorux regia]. (Hibiscus can also be used). With the aid of a hand lens, examine one of the flowers:

1. Locate the **stalk** of the flower. The uppermost end of the stalk is swollen. This is the **receptacle.**

2. Attached to the swollen end are a set of **rings** (whorls). Starting from the outside and moving in, the first structures you will see are the **sepals.** Locate them on your flower. There should be five. Remove one of these structures and draw it.

3. The next ring (whorl) are the **petals.** They are brightly coloured in the Flamboyant. Again this flower has five petals. Remove one and draw it.

4. Inside of the petals are the male and female reproduction parts. The male part is called the **stamen** and the female part the **pistil.** In the flamboyant, the male part is distinguishable because there are 10, five short and five long. Each stamen consists of an anther and a filament. Remove one and draw it. At the centre of the flower surrounded by the stamen is the pistil.

   The pistil has three parts. The enlarged part at the bottom is the **ovary;** the stalk is the **style** and the bum is the **stigma.** Try to find all of these structures.

5. With a sharp scalpel or knife, cut the pistil length-wise. What do you see in the ovary? Small round structures. These are the ovules. Draw the cut surface of the **carpel.**

Skills to be tested:

Manipulation
Recording

29. Does Temperature Matter to Germination?

Materials:

24 pigeon peas
6 small containers (jam jars are adequate)
toilet paper or newspaper (enough to line the 6 containers)

Method:

A

1. Place about 1 cm depth of water in two jam jars, then line the jars with toilet paper or newspaper.

2. Take 8 of the 24 seeds, soak them, then place 4 seeds between the paper and the jar in each of two jars, about 5 cm from the bottom as shown in fig. 26.

3. Place one jar in the refrigerator and leave the other at room temperature.

4. Check the appearance of the seeds every day. Replace water if needed.

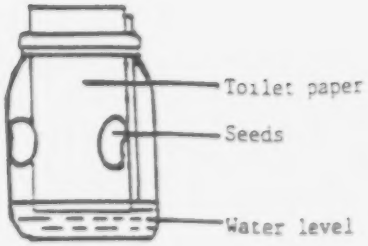


Fig. 26

Record your observations and make a conclusion about this activity.

B Repeat the experiment, setting up as in A but substitute the following:

water in one jar, no water in the other

C coat the seeds from one jar with vaseline to exclude oxygen and leave the others as they are.

Record your observations and make conclusions.

Skills to be Tested:

Manipulation
Observation
Interpretation

Appendix #5 **Teaching and Learning Processes: Reader Friendly Writing**

Sample 05-01: Module Table of Contents, Introduction, Summary and Glossary for Integrated Science: Module 22 - Co-ordination in Plants and Animals

Sample 05-02: End of Module Test Marking Sheet for Integrated Science Module 22

Sample 05-03: The Endocrine System for Integrated Science Module 22

INTEGRATED SCIENCE - MODULE 22

TABLE OF CONTENTS

1. Introduction

2. LESSON 1: Interdependence of Life Processes

3. LESSON 2: The Nervous System - Structure & Function

4. LESSON 3: The Endocrine System

5. LESSON 4: The Effect of Hormones on Physical Development & Behaviour

6. LESSON 5: Coordination in Plants

7. Summary

8. Glossary

9. End Of Module Test

INTEGRATED SCIENCE - MODULE 22

INTRODUCTION

What is coordination? Let me give you a simple example. Have you ever seen an old fashioned 'Cuckoo clock'? These clocks fascinate me! On each hour, a little door at the top of the clock opens, out pops a little bird that sings a little song. Then, bang - the little doors close and the bird disappears from view. At half past the hour, out it pops again, this time to sing half of its song. It disappears again to return precisely on the next hour. Everything happens in the right amount, in the correct order and at the correct time. This is coordination. It brings all the separate activities into a harmonious whole.

All the activities taking place in living things are coordinated so that the organism functions as one. How this happens is the subject of our module. It is really quite fascinating. We will see that coordination features in the lives not only of human beings but also in simple organisms and plants.

Let's not delay too long as there are many exciting things to learn in this module.

WHAT ARE OUR GOALS?

In this Module, we want to:

- understand the concept of coordination.
- realise that life processes are in coordination to bring about coordinated responses.
- understand the mechanisms by which coordination is brought about in both animals and plants.
- realise the importance of coordination in the life of human beings.

WHAT DO WE NEED TO START THE MODULE?

(A) **Materials:**

There are hardly any practical activities in this module. The activities are mainly pencil and paper exercises. However, you will need a torch and a partner for a brief moment in Lesson 02.

(B) **Pre-requisite Knowledge:**

To really appreciate the first lesson in the Module, you need to understand the processes which living things carry out to stay alive. These include processes like Respiration (Module 6), Excretion (Module 23) and Nutrition (Module 7). It will be a good idea just to refresh your memory about the meaning of these processes by referring to the modules mentioned above.

HOW DO WE PROCEED?

In a coordinated way of course. You must begin at the beginning! You see, Lesson 01 establishes the idea of coordination, and its importance. The other lessons go into detail about how coordination is brought about. You should do Lessons 02, 03 and 04 in that order. Lesson 05 may be done at anytime after you have done Lesson 01.

TIPS

The lessons in the Module are all very 'heady'. You have to imagine a lot of what is going on. To help you to think through all the information, I have included lots of diagrams. As you read, it is a good idea to keep referring to the diagrams. Picture the action being described actually happening in the organism.

So now I guess we are ready to start. How much time do you have today? Just enough for Lesson 1? Let's see what it is all about!

INTEGRATED SCIENCE - MODULE 22

SUMMARY

Now did you really understand this module? Was it clearer than if you had just read the text book? If your answer to both questions is "Yes", I would be very happy.

What should we know now?

Coordinated actions	- take place in living things - indicate that life processes are regulated and coordinated. - are brought about by the endocrine and nervous systems in human beings.
The Nervous System	- consists of the Central Nervous System and Peripheral Nerves. - coordinates voluntary and involuntary actions. - brings about quick responses.
The Endocrine System	- consists of the Endocrine glands. - in most cases coordinates long term responses. - may malfunction, causing diseases.
In plants	- many life processes are inter dependent. - some responses are coordinated by auxins.

We also learnt that

Scientists	- gain knowledge by collecting and interpreting data and making inferences from them.

Are you ready for your End of Module Test? You should be able to handle it with no problem. Good Luck!

GLOSSARY

Autonomic Nervous System	- a part of the peripheral nervous system. It consists of motor fibres from brain and spinal cord that serve the internal organs of the body. It is not under voluntary control.
Axon	- a long, thin fibre that carries nerve impulses away from the cell body of a neuron.
Central Nervous System	- the part of the nervous system that includes the brain and spinal cord.
Cerebellum	- a part of the brain located below the back of the cerebrum. It coordinates voluntary movements.
Cerebrum	- the front part of the brain. It consists of two swellings (cerebral hemispheres). It is concerned with conscious sensation, learning and memory.
Dendrite	- a short, branched part of a neuron which receives impulses and transmits them to the cell body.
Effector	- a muscle or gland
Endocrine gland	- a ductless gland.
Endocrine System	- a system of glands that secrete hormones directly into the blood.
Homeostasis	- the maintenance of a constant internal environment in an organism.
Hormone	- a substance secreted by an endocrine gland directly into the bloodstream that produces a specific effect on a particular tissue.

COURSE: INTEGRATED SCIENCE

MODULE: 22 - COORDINATION IN PLANTS AND ANIMALS

E M T

END of MODULE TEST

requires

ENERGY * MOTIVATION * TIME

Learner's Name:

Tutor's Name:

Date Written: Date Returned:

Learner's % Score:

Tutor's Initials

BEST COPY AVAILABLE

INTEGRATED SCIENCE - MODULE 22

LEARNER'S NAME.....TUTOR'S NAME.....

CONTENTS, TYPE OF QUESTION & MARKS

			MARKS Out of	My Score
SECTION A	Multiple Choice - 1 mark each		08	___
SECTION B	2 STRUCTURED QUESTIONS			
	Knowledge		14	___
	Enquiry Skills		3	___
		Total Score	25	___
		My Score		X

My Percentage Score $\frac{X}{25}$ x 100% = ___ %

My Letter Grade Score ___

My Adjective Score ___

Time Suggested:

Actual Time Taken: _____

MODULE: 22

Coordination in Plants and Animals

LESSON: 03

The Endocrine System

INTEGRATED SCIENCE

COMPREHENSIVE
TEACHER
TRAINING
PROGRAMME

© NOT FOR SALE

COURSE: INTEGRATED SCIENCE

MODULE: 22 - Coordination in Plants and Animals

LESSON: 03 - Interdependence of Life Processes

Completion Time: 1 1/2 hours

Before you begin you should be able to:

Show understanding of co-ordination (Lesson 01)

After this lesson you should be able to:

1. Describe the function of the Endocrine system.
2. Identify the effects of the mal-functioning of the endocrine system.

Materials required are:

Lesson 01 Moduie 20

INTRODUCTION

After that electric experience with nerves let's cool it and slow down. Let's meet the Endocrine System. In fact, the nervous system is the rabbit, while the endocrine system is the snail in coordination!

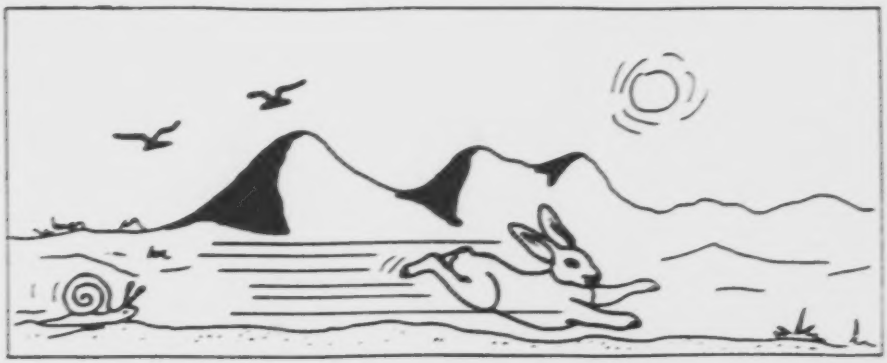


Fig. 22.22

ENDOCRINE CONTROL

Whereas nervous coordination is brought about by quick, electrical stimuli, endocrine coordination is brought about by chemical substances called **hormones** and the process is usually slow.

Some body processes controlled and coordinated by hormones are growth, rate of chemical reactions in the body, level of blood sugar.

Hormones are chemical substances produced in special organs called **Endocrine glands**. You have come across glands before when studying digestion, e.g., the salivary glands. You saw that the secretions of these glands passed through ducts or tubes to get to the organ where they were used. These glands with ducts are **exocrine** glands.

Endocrine glands do not have ducts to take the hormones to where they are needed. They pour the secretions right into the blood stream.

But doesn't the blood travel all over the body? How does the hormone 'know' which organ to go to? Only special organs will respond to a particular hormone.

1. The Pancreas - Islets of Langerhans

You have already studied the pancreas as an exocrine gland.

Remember?

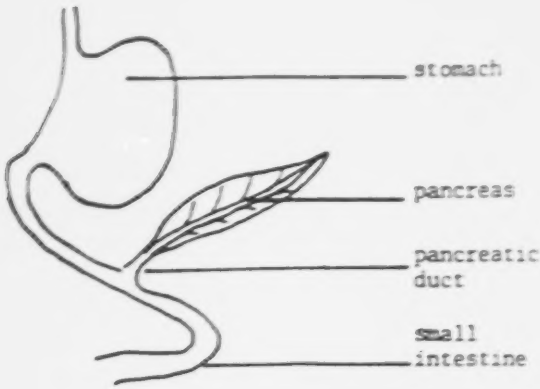


Fig. 22.25 Diagram of Part of Digestive System.

Special groups of cells in the pancreas produce hormones. These cells are called the Islets of Langerhans. The **Islets of Langerhans** secrete two hormones: (a) Insulin (b) Glycogen

These hormones control the amount of glucose in the blood. Insulin makes the body cells take in glucose from the blood. You know that cells need glucose to produce energy - so insulin has a very important function.

Insulin also makes the liver take up glucose and store it as glycogen. The effect of insulin is, therefore, to lower the amount of glucose in the blood.

Glycogen has the opposite effect to **insulin**. While insulin lowers the blood sugar, glycogen raises it. When the blood sugar falls below a certain level, glycogen is produced. It makes the liver change glycogen to glucose.

1 The Sex Organs

The ovaries of the female and testes of the male are endocrine organs.

2. Ovaries

The ovaries produce two hormones, **oestrogen** and **progesterone**. Oestrogen is responsible for the development of (a) the female reproductive system. (b) the secondary female sex characteristics such as breasts, broad hips. Oestrogen and progesterone work together to coordinate the menstrual cycle.

3. The Testes

The testes secrete hormones called **androgens**. The most important androgen is **testosterone**. Testosterone is responsible for the development of (a) the male reproductive system, (b) secondary male sex characteristics such as a deep voice, body hair, beard and muscle development.

CHECKPOINT 2

1. Match the endocrine gland on the left with the hormone(s) it produces on the right.

Pituitary	Oestrogen
	Adrenalin
Islet of Langerhans	Testosterone
	Vasopressin
Adrenal glands	Progesterone
	Growth Hormone
Ovary	Insulin
	TSH
Testes	Glycogen

2. Select the correct hormone from the pair in brackets and state which hormone:
   a. lowers blood sugar (insulin, glucagon)
   b. prepares the body for emergency (vasopressin, adrenalin)
   c. controls the development of secondary sex characteristics (progesterone, oestrogen)
   d. controls the growth of the body (growth hormone, TSH)
   e. controls the amount of water in urine (prolactin, vasopressin)

COORDINATION OF THE ENDOCRINE SYSTEM

You must be wondering how the endocrine glands 'know' when to secrete their hormones. How is this system coordinated?

Sometimes the stimulus that starts up or slows down a gland secreting its hormones may be nervous, e.g., nerves in the sympathetic system regulate the production of adrenalin. In many cases though, the stimuli are chemical. The endocrine glands are regulated by the concentration of substances in the blood.

To get an idea of how this works, let's go to the kitchen for a while to fry some chicken! You turn on the fire and the oil gets hot. You put in your chicken. But then the fire gets too hot. The chicken starts to burn! You turn down the flame! After a while the oil is not hot enough. You turn up the flame - you have to turn the flame up and down to keep the temperature right.

Look at this scheme.

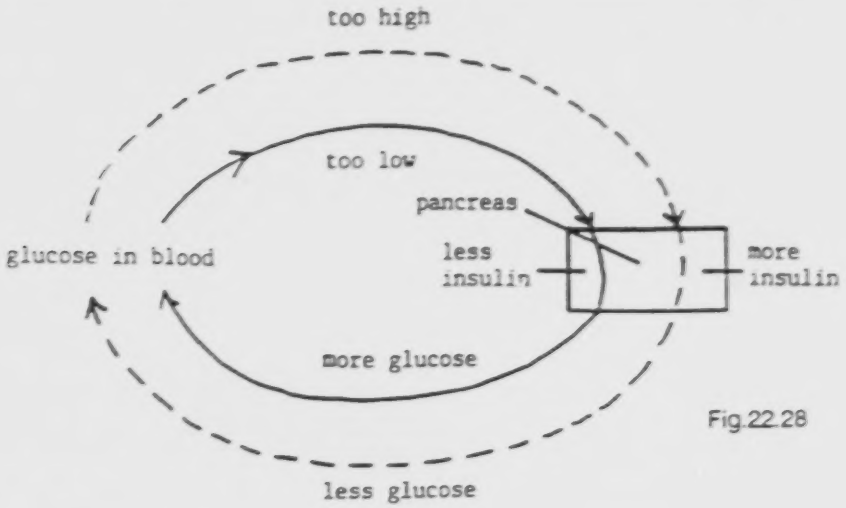


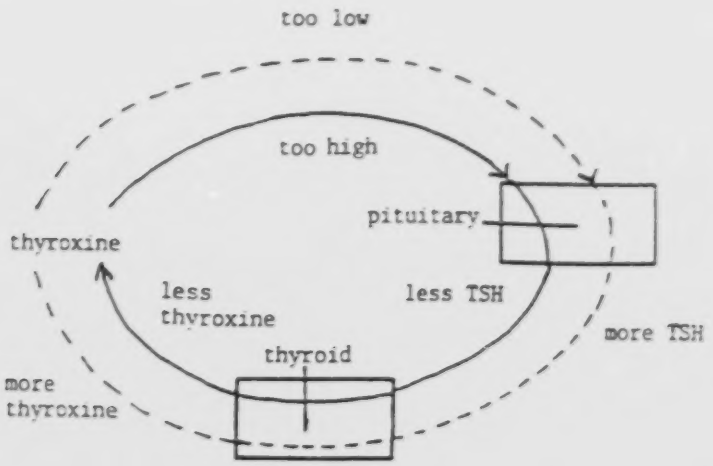
Fig.22.28

The system gets information that the level of glucose is not right and it takes action to correct it. This is a feedback mechanism. Since the feedback has the effect of returning the level of glucose to normal, it is called negative feedback.

Sometimes the feedback works via another hormone.

The secretion of thyroxine by the thyroid gland is regulated by the Thyroid Stimulating Hormone (TSH) which is secreted by the pituitary. Here's how it works.

Fig. 22.29



If the level of thyroxine is too low, the pituitary secretes more TSH. This stimulates the thyroid to secrete more thyroxine. If the level of thyroxine is too high, the pituitary secretes less TSH. The thyroid secretes less thyroxine.

See if you understand this by doing the following exercise.

This is not normal. The doctor can tell by testing the urine. Type 1 diabetes usually develops in youth. This type of diabetes is controlled by insulin injections. Only 7% - 10% of diabetics in the Caribbean have this type of diabetes.

The majority of diabetics in the Caribbean have Type 2 diabetes. It is usually found in patients over 40 years old and is more common in women than in men. Control of diet and weight as well as exercise are the primary ways of managing this type of diabetes. If diabetes is untreated it causes death.

Symptoms of diabetes include great thirst, weight loss, frequent urination and general weakness.

Do you know anyone with diabetes? It is nothing to be ashamed of and you cannot 'catch' it from someone else. You should encourage diabetics to follow their doctor's advice and to attend Diabetic Clinics where they can be educated about the disease.

You may wish to carry out one of the following activities in your community.

Activity 2: Either:

- check at the health centre for the number of registered diabetics in your community
- calculate the percentage of diabetics in the community, the ratio of male/female, and the frequency of diabetes in different age groups.

or

- interview some diabetics to find out about treatment, any complications they have, diet etc.

or

- find out what are some of the local (folk) medicines used in your community for treating diabetes.

You should get some interesting information from that activity. You should share it with your marker/tutor.

There may, of course, be malfunctioning of other hormones. Look at the following Table 22.01. Do you know anyone with any of these disorders?

Gland	Hormone	Effect of Oversecretion	Effect of Undersecretion
Pancreas	Insulin	Diabetic shock. Blood glucose level falls. Convulsions, unconsciousness, death may occur if untreated	Diabetes: Individual has abnormally high blood glucose level, becomes dehydrated, loses weight, cannot resist infections. If untreated can cause death.
Pancreas	Glycogen	Abnormally high blood glucose level.	Abnormally low blood glucose level.

Let's pause for a little self check before we end this lesson.

CHECKPOINT 3

Fill in the blank spaces.

Endocrine organs may be stimulated by the level of substances in the (1) _____ and even by other (2)_____.

Sometimes endocrine organs malfunction. This means that they either (3) _____or (4) _____ hormones.

Diabetes (5) _____ is an example of a disease caused by endocrine malfunction. It is caused by:

(a) (6)_____

(b) (7)_____

A person who suffers from diabetes is called a (8) _____ and has abnormally (9) _____ blood glucose levels. There are (10) _____ people with diabetes in the Caribbean. They suffer mainly from (11) _____diabetes.

Diabetes cannot be cured but it can be (12) _____.

Dwarfism results from an (13) _____ of (14) _____ hormone. A goitre may indicate a malfunction of the (15) _____ gland.

Remember to check your answers with those given at the end of the lesson.

ANSWERS

CHECKPOINT 1

1. False
2. True
3. False
4. False
5. False

CHECKPOINT 2

Pituitary	Vasopressin
	Growth hormone
	TSH
Islet of Langerhans	Insulin
	Glycogen
Adrenal Glands	Adrenalin
Ovary	Oestrogen
	Progesterone
Testes	Testosterone

(a) Insulin
(b) Adrenalin
(c) Oestrogen
(d) Growth hormone
(e) Vasopressin

Appendix #6 **The Appeal of Accessibility, Inclusivity, Simplicity**

Sample 06-01: OCOD-CTTP Employees by Gender

Sample 06-02: Editing the OCOD-CTTP Modules for Sexism: Four Examples

Sample 06-03: The **Nonsexist Communicator - Solving the Problems of Gender and Awkwardness in Modern English**. Bobbye D Sorrels, Englewood Cliffs: Prentice Hall Inc. 1983 - Appendix B - A Sample Excerpt

Sample 06-01

OCOD-CTTP EMPLOYEES BY GENDER

Titles	Women	Men
Project Coordinator	1	0
Consultants and Content Editors	15	5
Writers	14	8
Country Coordinators	3	0
Marker/Tutors	8	2
Lea-ners/Teachers	91	29
Totals	132	44

Involvement of Women in the CTTP

ENGLISH

Sample 1

Content

B. *Alyssa obtained a job in the X-Ray Department of the hospital. She then met Dr John, a radiologist. They fell in love, got married six months later and eventually had four children.*

Comments

Module III

ENO301-4 Sentence B - This sentence is blatantly sexist. Alyssa obtained a job as a what? MD, nurse, orderly? Women have jobs, men have careers. She met Dr. John, a radiologist (that's a career not a job). Dr John didn't need her also?? Only women need men, men don't need women. Is this supposed to be every woman's dream? Be submissive, get a job, get a man, get some babies and live happily ever after ... get real. How many doctors are in Dominica, St Lucia and St Vincent? In the rural areas?

Sample 4

Content

USING LINKING WORDS

Our listeners or readers must know what happened first. To establish the correct sequence, we sometimes use certain linking words, for example, *before*, *after*. We may also use a different tense of the verb to show the time order.

It makes no real difference to which part of the sentence we attach the linking word. Consider the following sentence, for example:

She did her shopping after she had visited her father.

We might also have,

After she had visited her father, she did her shopping.

The two sentences mean the same thing.

If the events described had happened in a different order, we would have had either,

She visited her father after she had done her shopping.

or

After she had done her shopping, she visited her father.

The position of the linking word *after* and the tense used are what tell us which event happened first.

Comments

ENO304-3 Picture. Where is this picture of a nude man taking a shower? This picture does not belong in this module, it is demeaning to women.

SOCIAL STUDIES

Sample 9

Content

Arising Social Problems

Economic institutions, then, serve to provide the goods and services that people need. In this whole process, however, social problems also arise.

Unemployment continues to be a major concern in the region, with figures ranging from 14% to as high as 30%.

Women have complained that they do not receive equal pay for doing the same work as men.

In many cases, there is a large **unequal distribution of income and wealth**. A small sector of the population may own a large percent of the country's wealth. This inequality causes further problems.

A large proportion of the population may be deprived in terms of **educational opportunities and good health.**

Crime may increase as the dispossessed attempt illegally to create a more equitable society.

Finally, the **environment** suffers especially in the area of housing.

How can we organise our economic institutions so that we can get rid of these social problems? Can you offer some suggestions?

Comments

SS0802-8 Arising Social Problem. Sexism. "Women have **complained**" not just words. Women have proved? Asserted? Ascertain, declared? "Complained", trivializes a very real problem. Very poor selection of a word.

ple 5

tent

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Comments

Picture - Are most W.I. men this much taller than W.I women? Are most W.I. women who have three children this small? Especially the last two being very young - Where is the woman's stomach?

EXERCISE 5-3

As an excerpt from a short informal report, Exercise 5-3 provides opportunity for eliminating the pervasive sexism that occurs in informal writing. Because the report discusses an upcoming advertising project, the removal of stereotyped sexism is particularly important. Observe that the corrected version uses the active voice—this is possible because the personal style prevails.

Sexist Words and Phrases

After you receive approval for your new project, you will need to begin the search for the money, *men* (1), materials, market, and management necessary to complete it. Engage the support of the company *wives* (2), and you will find that the project will go more smoothly than it would without their support.

Because your project will involve the development of a new four-*man* (3) trailer tent, center your marketing plan on *sportsmen* (4) or *outdoorsmen* (5). You should check out the possibilities for coupling your campaign with that for the two-*man* (6) canoe that was developed last year. Use appeals to the *man's man* (7), the rugged *man* (8), the *man* (9) of the earth, and even the return to the *common man* (10) as you develop your advertising design.

Picture primitive scenes with *bewhiskered and rugged riflemen* (11) and *huntsmen* (12). However, also picture friendly scenes. Include a *father and son* (13), with *man's* (14) best friend—the family dog. *He* (15) should be bouncing happily beside the tent and beside *the mother as she cooks the fish* (16) the *fishermen* (17) have caught from the stream nearby. Show *dad helping his son* (18) build a *snowman* (19) in a winter scene. Stress the safety of the trailer tent against *man-eating* (20) animals.

Spotlight the excitement of the wild as it is conquered by *man* (21). You might even include footprints of the Abominable Snow *Man* (22). *He* (23) is, after all, a creature whose existence is not really believed, but who, like ghosts, introduces adventure into an outing. You might show the *frightened mother and daughter* (24) being comforted by the *strong father and son* (25) as they view the footprints. Make the *father and son the men of the hour* (26) by showing *how easily they can set up the tent* (27), as the *mother and daughter look on with admiration* (28). Show the *father and son* (29) pull away from the shore in their canoe as the *girls* (30) wave and wish them well.

You might feature the strength and water-tightness of the tent by picturing the family in snug comfort as the rain and wind are swirling about them. The *mother is doing the dishes* (31), the *father is showing the son how to put a hook on the fishing line* (32), and the *daughter is playing with her doll* (33). A newscaster's voice emanates from a portable radio. *He* (34) says, "And the cost of living is hurting both the working *man* (35) and the *housewife* (36) in their battle to make ends meet."

Corrected Words and Phrases

After you receive approval for your new project, you will need to begin the search for the money, *personnel* (1), market, and management necessary to complete it. Engage the support of the company *spouses* (2), and you will find that the project will go more smoothly than it would without their support.

Because your project will involve the development of a new four-*person* (3) trailer tent, center your marketing plan on *sports people* (4) or *outdoors people* (5). You should check out the possibilities for coupling your campaign with that for the two-*person* (6) canoe that was developed last year. Use appeals to the *strong individual* (7), the rugged *person* (8), the *human* (9) of the earth, and even the return to the *basic person* (10) as you develop your advertising design.

Picture primitive scenes with *earthy rifle carriers* (11) and *hunters* (12). However, also picture friendly scenes. Include a *family* (13), with *its* (14) best friend—the family dog. *It* (15) should be bouncing happily beside the tent and beside the *father and daughter as they cook the fish* (16) the *family* (17) has caught from the stream nearby. Show *all members of the family* (18) building a *snow figure* (19) in a winter scene. Stress the safety of the trailer tent against *human-eating* (20) animals.

Spotlight the excitement of the wild as it is conquered by *people* (21). You might even include footprints of *Big Foot* (22). *It* (23) is, after all, a creature whose existence is not really believed, but which, like ghosts, introduces adventure into an outing. You might show the *frightened children* (24) being comforted by the *parents* (25) as they view the footprints. *Show how easily all members of the family can set up the tent* (26) (27) (28). Show the *mother and son* (29) pull away from the shore in their canoe as the *father and daughter* (30) wave and wish them well.

You might feature the strength and water-tightness of the tent by picturing the family in snug comfort as the rain and wind are swirling about them. The *father and mother are doing the dishes* (31), and *the children are putting hooks on their fishing lines* (32) (33). A newscaster's voice emanates from a portable radio. *She* (34) says, "And the cost of living is hurting both the *worker* (35) and the *consumer* (36) in their battle to make ends meet."

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Appendix #7 **Delivery and Support System**

Sample 07-01: A Radio Announcement for OCOD/CTTP Learners.

Organization for Cooperation in Overseas Development

Head Office:
100 Arthur Street
Winnipeg, Manitoba
Canada R3B 0V4
Phone: 204-233-1332
FAX: 204-231-1752
Cables: OCODEV Winnipeg

Regional Office
P. O. Box 129
Villa
Castries
Saint Lucia, W.I.
Phone: 809-452-7955
FAX: 809-453-0127

23rd February, 1992

Mr Mathew Roberts
Ministry of Education
CASTRIES

Dear Mr Roberts,

I would be most grateful if you could put this release on the radio as often as possible. It is important that these learners come to the face-to-face session but it is difficult to reach some of them.

We really appreciate your co-operation.

Sincerely,

Anne V. King

Anne King (Mrs)
Country Co-ordinator

24th February, 1992

Release for Radio

CTTP learners in English, Mathematics and Integrated Science are reminded of the face-to-face session at the Castries Comprehensive School on Saturday, 29th February at 9 a.m. Please bring along your journals and any evaluation forms you have. This is an important session so please make every effort to attend at 9 a.m. sharp at CCSS on the 29th.

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